CCD-M8/M8u

SERVICE MANUAL

US Model
Canadian Model
CCD-M8u
E Model
CCD-M8

September, 1985

Video 8

SPECIFICATIONS

System

Video recording system	Rotary two heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	NTSC color, EIA standards
Usable cassettes	8 mm video format cassette
Tape speed	SP: Approx. 1.43 cm/sec
Recording time	2 hr. (P6-120)
Image device	CCD (Charge Coupled Device)
Viewfinder	OVF
Lens	f = 15 mm, F1.6 3 positions zone focus

Depth of field *

m (feet)

mark	focus point	indoors	cloudy day	sunny day
👤	1.5 (4.9)	1.2–2.0 (3.9–6.6)	0.9–4.5 (3.0–14.8)	0.6–∞ (2.0–∞)
■👥	2.4 (7.9)	1.7–4.2 (5.6–13.8)	1.2–∞ (3.9–∞)	0.8–∞ (2.6–∞)
▲	6.0 (19.7)	2.9–∞ (9.5–∞)	1.7–∞ (5.6–∞)	1.0–∞ (3.3–∞)

Color temperature	☼ : 3200° K ✹ : 5800° K
Minimum illumination	25 lux (2.3 footcandles)
Illumination range	25–100,000 lux (2.3–9,294 footcandles)
Recommended illumination	More than 300 lux (28 footcandles)
Microphone	Input −66 dBs, Electret condenser microphone

General

Power requirements	6 V dc
Power consumption	5.2 W
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	−20°C to +60°C (−4°F to +140°F)
Dimensions	Approx. 61 × 109 × 173 mm (2½ × 4⅜ × 6⅞ in.) (w/h/d) excluding the grip Approx. 107 × 109 × 215 mm (4¼ × 4⅜ × 8½ in.) (w/h/d) including the grip
Weight	Approx. 1.0 kg (2 lbs 3 oz) excluding the battery and cassette Approx. 1.37 kg (3 lbs) including the battery and cassette

Accessories supplied
Shoulder strap (1)

Design and specifications are subject to change without notice.

*When the FOCUS switch has been set to one of the three marks, an object within the range shown in the list will be in focus.

MICROFILM

Consumer
VIDEO

8 VIDEO CAMERA RECORDER

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

ATTENTION AU COMPOSANT AYANT RAPPORT A LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UN TRAMÉ ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DU CIRCUIT QUI SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNMENT SONT IDENTIFIÉS DANS CE MANUEL. SUIVRE LES PROCÉDURES QUAND LES COMPOSANTS CRITIQUES SONT REMPLACÉS OU LE FONCTIONNEMENT IMPROPRE EST SUSPECTÉ.

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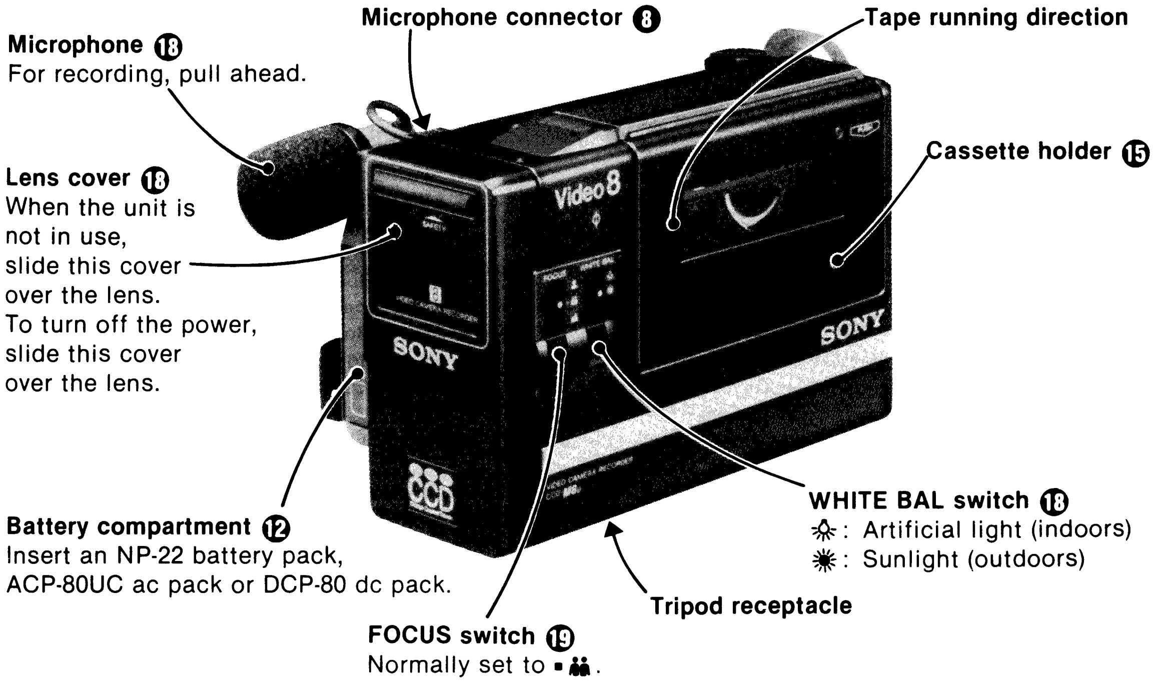
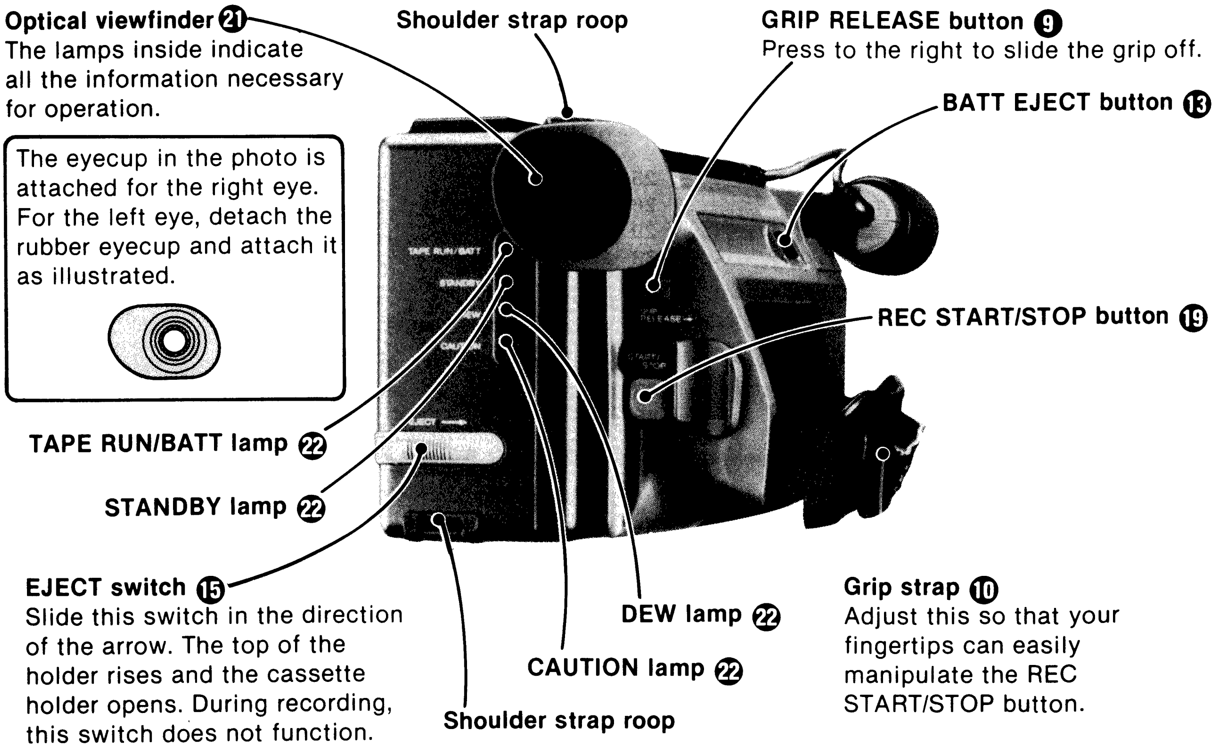
SECTION 1
GENERAL

1-1. LOCATION AND FUNCTION OF PARTS AND CONTROLS

For details on the use of each control, refer to the pages indicated in the circles.

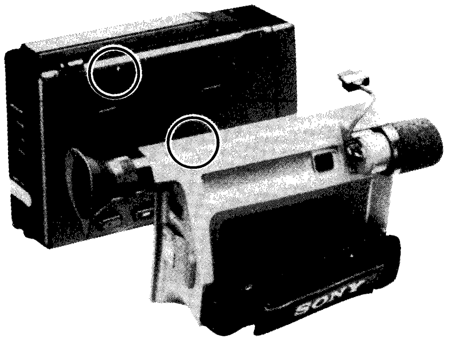

Microphone connector ⑧
Tape running direction
Microphone ⑱
For recording, pull ahead.
Cassette holder ⑮
Lens cover ⑱
When the unit is not in use, slide this cover over the lens.
To turn off the power, slide this cover over the lens.
Battery compartment ⑫
Insert an NP-22 battery pack, ACP-80UC ac pack or DCP-80 dc pack.
WHITE BAL switch ⑱
☼: Artificial light (indoors)
✹: Sunlight (outdoors)
Tripod receptacle
FOCUS switch ⑲
Normally set to ▪👥.
Video8
SONY
CCD


Optical viewfinder ㉑
The lamps inside indicate all the information necessary for operation.
Shoulder strap roop
GRIP RELEASE button ⑨
Press to the right to slide the grip off.
BATT EJECT button ⑬
The eyecup in the photo is attached for the right eye. For the left eye, detach the rubber eyecup and attach it as illustrated.
REC START/STOP button ⑲
TAPE RUN/BATT lamp ㉒
STANDBY lamp ㉒
EJECT switch ⑮
Slide this switch in the direction of the arrow. The top of the holder rises and the cassette holder opens. During recording, this switch does not function.
DEW lamp ㉒
CAUTION lamp ㉒
Shoulder strap roop
Grip strap ⑩
Adjust this so that your fingertips can easily manipulate the REC START/STOP button.

1-2. ATTACHING THE GRIP

1 Align the ▼ marks.
2 Pull the grip until it locks.
3 Connect the microphone connector with the ⌂ mark upwards.

1



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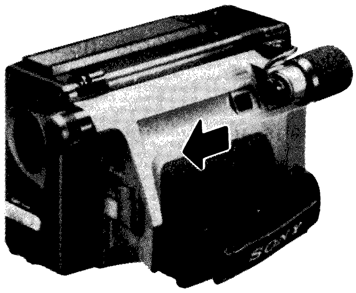

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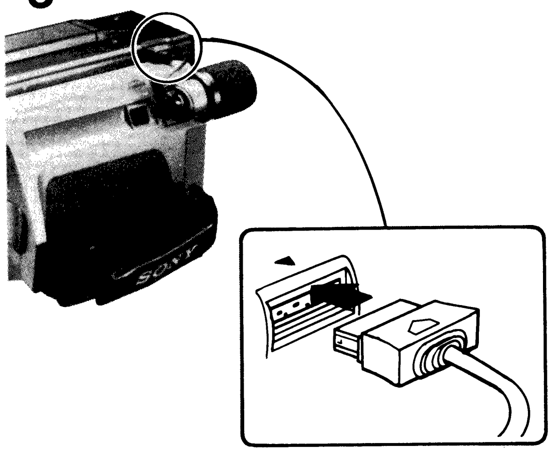
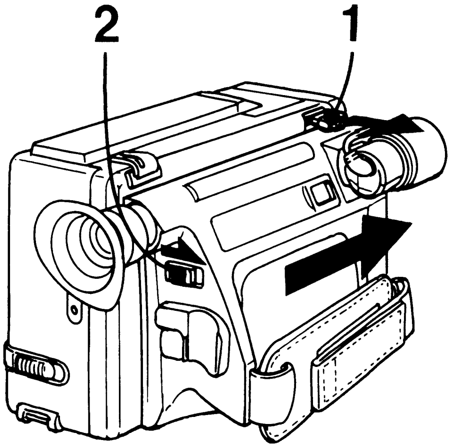


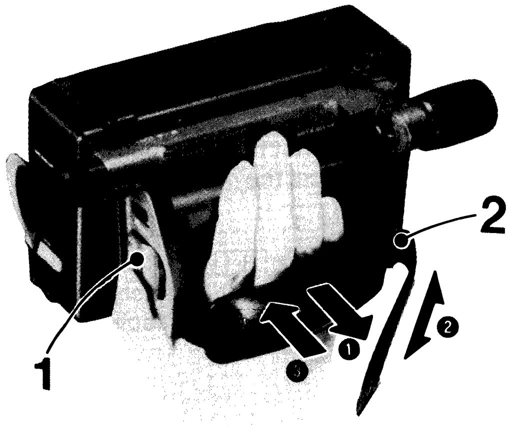


To detach the grip
1 Disconnect the microphone connector.
2 While pressing the GRIP RELEASE button to the right, slide the grip off.

1-3. ADJUSTING THE GRIP STRAP [A]

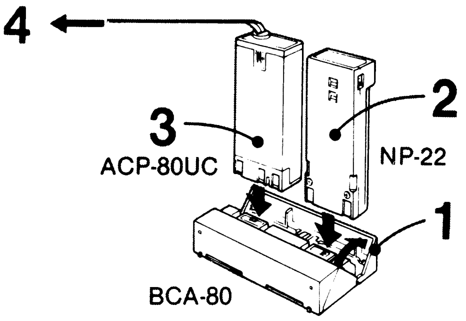
1 Position your right hand so that your fingertip can easily manipulate the REC START/STOP button.
2 Adjust the length of the strap (❶, ❷, ❸).

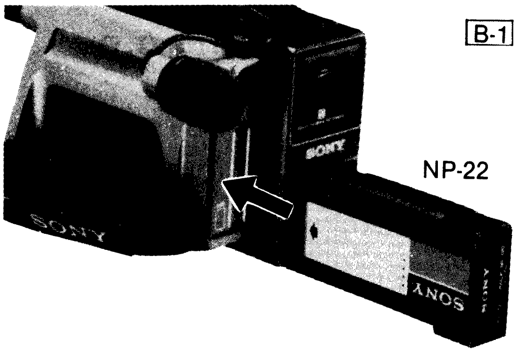
[A]



1-4. POWER SOURCES

Place	Accessory to be used	Connection
Outdoors	Battery pack NP-22	page 6
Indoors (house current)	AC pack ACP-80UC	page 7
In the car	DC pack DCP-80 and car battery cord DCC-16AW	page 7





BATTERY PACK

How to charge

Use the ACP-80UC ac pack and the BCA-80 battery charge adaptor to charge the battery.

Rapid charging

The charging time is about 1 hour for one battery only.

1 Open the side with △ OPEN mark of the BCA-80 battery charge adaptor.
2 Insert the battery with the metal contacts facing the inside.
3 Insert the ac pack into the battery charge adaptor with the metal contacts facing the inside.
4 Connect the ac power cord of the ac pack to the ac outlet.

Normal charging

It takes about 8 hours to charge up to 3 batteries simultaneously. Slide the RELEASE switch of the BCA-80 in the direction of the arrow to open the other side and insert 1 to 3 batteries.

When the batteries are fully charged, the charging will stop automatically and the CHARGE lamp of the battery charge adaptor will go out.

Battery life

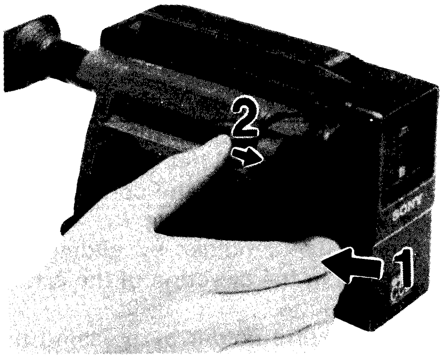
At normal temperatures, a fully-charged battery provides 80 minutes of continuous operation.

Notes

- As this unit consumes power even in the standby mode, the actual recording time will be shortened.
- If the battery pack is not fully charged or if it is used in a cold place, the operating time is shortened.

To insert the battery pack B-1

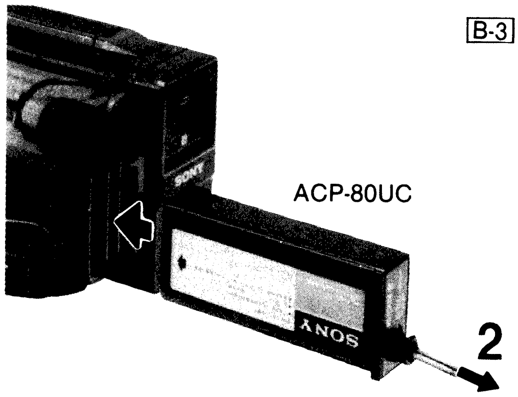
Insert the NP-22 battery into the battery compartment with the metal contacts facing the inside.



B-2

To remove the battery pack B-2

1 Push the bottom of the battery pack and hold it.
2 At the same time slide the BATT EJECT button in the direction of the arrow and slide the battery pack out.



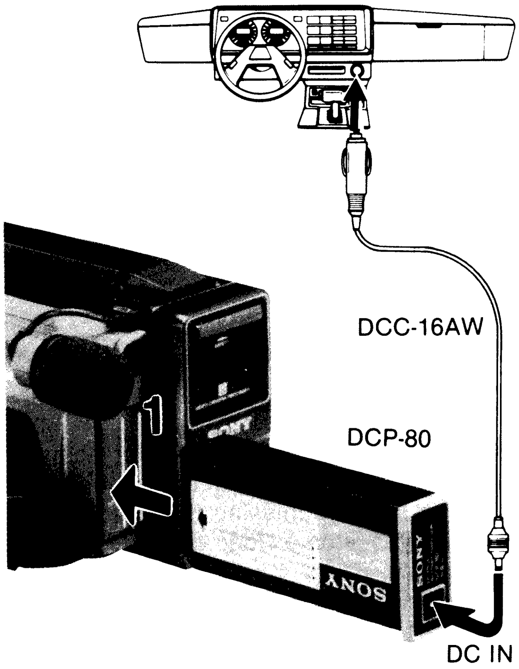
B-3

AC PACK

Connection B-3

1 Insert the ACP-80UC ac pack into the battery compartment with the metal contacts facing the inside.
2 Connect the ac power cord of the ac pack to the ac outlet.

To remove the ac pack, push the ac pack in and at the same time slide the BATT EJECT button in the direction of the arrow.



CAR BATTERY

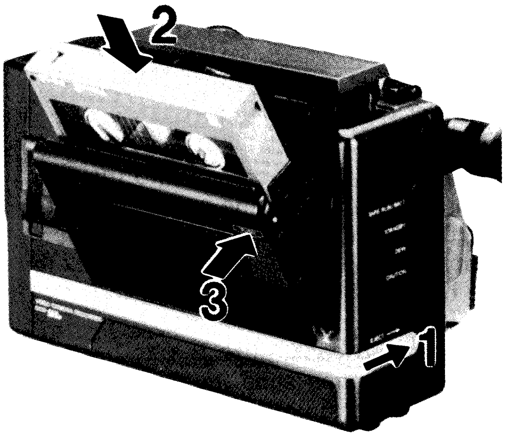
Connect the DCC-16AW car battery cord to the DC IN jack of the DCP-80 dc pack and to the cigarette lighter (12 V or 24 V) socket of a car and insert the dc pack into the battery compartment.

To remove the dc pack, push the dc pack in and at the same time slide the BATT EJECT button in the direction of the arrow.

Note on power source
It the battery/ac pack is removed or the power cord of the ac pack is disconnected during recording or in the standby mode, the tape may be damaged, unless power is supplied again soon.

1-5. CASSETTE CARE

CASSETTE INSERTION



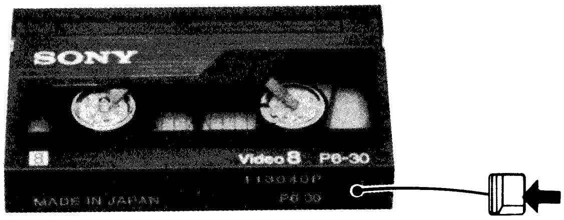
First insert the battery or ac pack into the battery compartment and connect the power cord of the ac pack to the ac outlet.
Always insert a cassette in the correct direction. Never insert it upside down.

1 Open the cassette holder by sliding the EJECT switch in the direction of the arrow.
2 Insert the cassette.
3 Close the cassette holder by pressing the PUSH mark on the holder.

To remove the cassette, open the cassette holder by sliding the EJECT switch in the direction of the arrow.

THE TAB ON THE CASSETTE

(The photo is Sony cassette.)



When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased. To avoid erasing a recording, slide the tab out to cover the opening.
To re-record on a cassette, slide the tab in.

When the cassette with the tab set out is inserted and the REC START/STOP button is pressed, this unit does not function.

Note

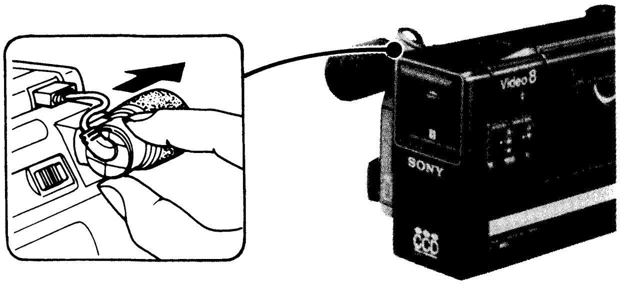
- Never insert anything in the small holes on the rear of the cassette. These holes are used to sense the kind of tape, thickness of tape, if the tab is out or in, etc.
- While the top of the cassette holder is rising, never pull or push it forcibly.
- To view the picture which has been recorded on this unit, set a monitor switch of the video cassette recorder for playback to the STD (standard) position.

TO RECORD FROM THE BEGINNING OF THE TAPE

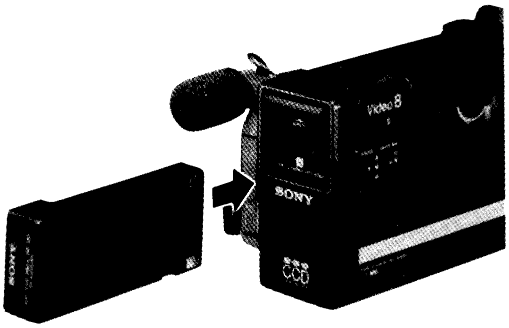
Run the video camera recorder for about 15 seconds at the beginning of a cassette before recording to avoid missing the starting point during playback on a video cassette recorder.

1-6. CAMERA RECORDING

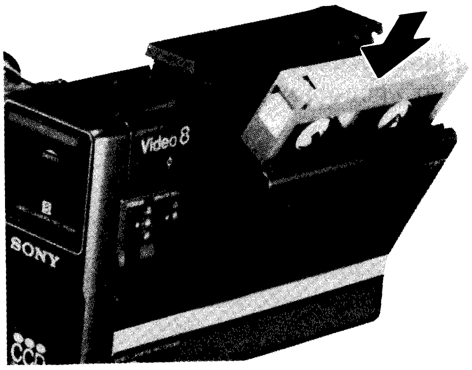
1 Holding the microphone base, push the microphone out.



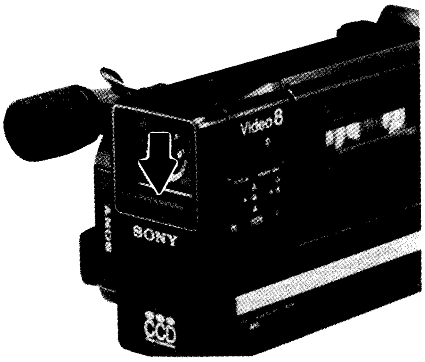
2 Insert the battery.



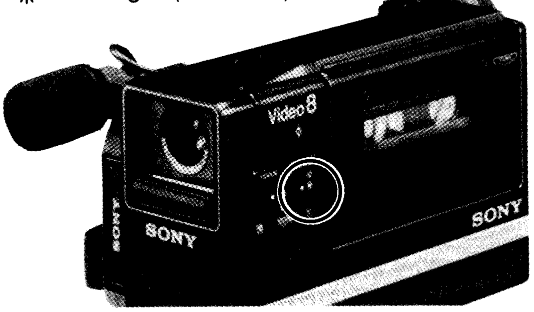
3 Insert the cassette.



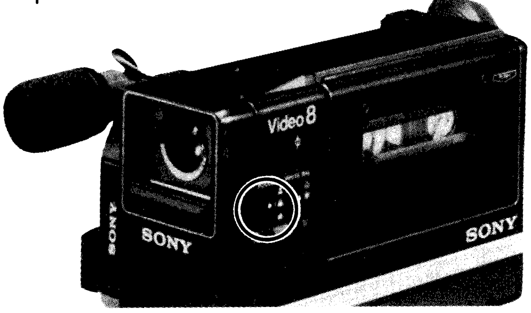
4 Open the lens cover completely.



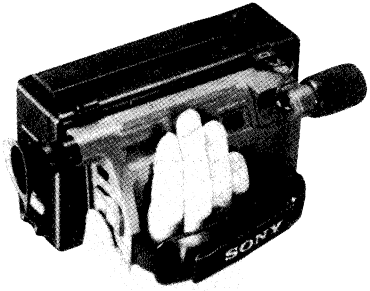
5 Adjust the white balance. (For details, see page 12.)
✧ : Artificial light (indoors)
✳ : Sunlight (outdoors)



6 Adjust the focus.
Normally set to ▪👥. For details, see "On the position of the FOCUS switch" on page 10.



7 Press the REC START/STOP button all the way in. After only the red lamp lights up, recording starts.



To stop recording, press the REC START/STOP button deeply. The unit is in the standby mode.

- To resume the recording, press the REC START/STOP button again.
- **To produce a consecutive recording on a cassette, do not remove the cassette between recordings.**

When the unit is not in use, slide the lens cover over the lens and replace the microphone.

To start recording immediately
Lightly press the REC START/STOP button. When the standby lamp (orange) blinks and then lights up, the recorder is in the standby mode. When the REC START/STOP button is pressed all the way in again in the standby mode, the recording will start immediately.

If the standby mode continues for more than approximately 3 minutes, the standby mode will be automatically released and the power will be turned off.

On the position of the FOCUS switch
When you would like to record indoors using a dim light, set the FOCUS switch according to the following distances.

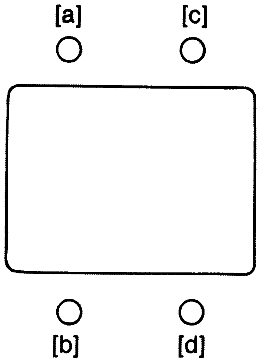
👤 : Approx. 1.2-2.0 m (3.9-6.6 feet)
▪👥 : Approx. 1.7-4.2 m (5.6-13.8 feet)
▲ : More than 2.9 m (9.5 feet)

Note

- Never hold the microphone by the black windscreen.
- Avoid shaking the unit in the standby mode.
- Never record an extremely bright object such as the sun just after recording under dark conditions; otherwise normal recording may become impossible. In this situation, point the recorder at any object except a very bright one.
- A vertical band may appear when a subject such as a candle flame or a light is shot against a dark background.
- A lens filter or a conversion lens can't be attached to this unit.
- **When recording has stopped and the unit is in the standby mode, the function buttons will not work for about 3 seconds.**

1-7. INDICATORS

LAMPS INSIDE THE VIEWFINDER



[a] Indoor lamp (yellow)
Lights up when the WHITE BAL switch is set to ☼.

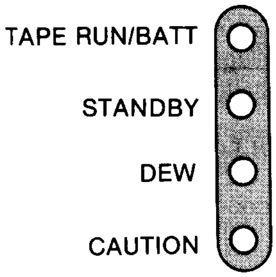
[b] Tape run/battery lamp (red)
Blinks when the inserted battery is exhausted.
Lights up during recording.

[c] Standby lamp (orange)
Blinks before the recorder is set in the standby mode.
Lights up when the recorder is set in the standby mode.

[d] Low light lamp (yellow)
Lights up when the light is insufficient.

[b] and [c]
Blinks alternately when moisture has condensed inside the unit. (See page 12)
Blinks when the video heads have been contaminated.

LAMPS OUTSIDE THE RECORDER



TAPE RUN/BATT lamp (red)
- Blinks when the battery is exhausted.
- Lights up during recording.
- When moisture has condensed during recording, this and STANDBY lamps blink alternately.

STANDBY lamp (orange)
- Blinks before the recorder is set in the standby mode.
- Lights up when the recorder is set in the standby mode.
- When the video heads have been contaminated during recording, this and TAPE RUN/BATT lamps blink alternately.

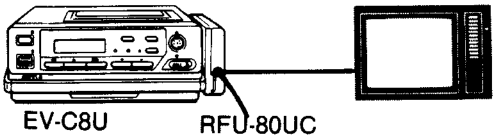
DEW lamp (yellow)
- Lights up when moisture has condensed inside the unit. (see page 12)

CAUTION lamp (red)
- Lights up when the video heads have been contaminated.

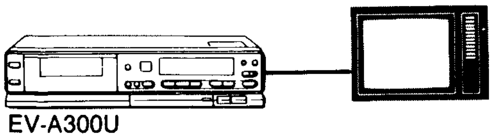
1-8. TO VIEW THE RECORDED TAPE

Example 1: Playback on a Sony EV-C8U video cassette recorder
Example 2: Playback on a Sony EV-A300U video cassette recorder

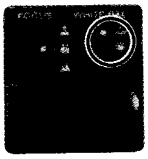
1



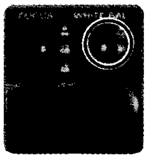
2



C-1



C-2



1-9. WHITE BALANCE

The white balance must be adjusted so that a white subject can be recorded white no matter what the color of the light source. Normally set the WHITE BAL switch as suggested on page 9 except

C-1 for night lights or fireworks .... Set to 💡.

C-2 for recording indoors, but with sunlight as the dominant light source .... Set to ☀.

If light conditions change, the white balance may have to be readjusted.

Note

According to the light source, the white subject may not be recorded white.

1-10. NOTES ON MOISTURE CONDENSATION

INSIDE THE RECORDER SECTION

If the unit is brought directly from a cold to a warm location, moisture may condense on the drum assembly inside the unit. In this condition, the tape may adhere to the head drum. To prevent damage under these circumstances, the recorder section is furnished with a moisture sensor.

If moisture is present, the TAPE RUN/BATT lamp (red) and STANDBY lamp (orange) blink alternately and the DEW lamp (yellow) lights up.
Remove the cassette and let the unit stand with the cassette holder open for about an hour.

The moisture has evaporated if the cassette holder can be closed.

When the moisture has condensed, the buttons except the EJECT will not function and the recording will stop.

ON THE LENS

Moisture may condense also on the lens when the unit is brought in from a cold place to an extremely warm place, causing the lens to become dim. If this occurs, slide the lens cover over the lens and leave the unit unused at least for an hour.

1-11. USING YOUR RECORDER ABROAD

Each country has a TV color broadcast and electricity standard. Before using your recorder abroad, check the following points.

For camera recording
Prepare fully charged batteries and extra video cassette tapes.

For monitoring the playback picture
Use an 8 mm video cassette recorder and TV based on the NTSC system. If you use an EV-C8U video cassette recorder, a TV based on the NTSC system which is equipped with audio/video inputs must be used.

NTSC system countries
Bahama Islands, Canada, Central America, Japan, Korea, Mexico, Taiwan, the Philippines, U.S.A., etc.

1-12. BRIGHTNESS LEVELS

The single greatest influence on picture quality is the brightness level. Using the following chart as a reference, take a few minutes to familiarize yourself with brightness levels to improve your recording.

Normal recording	Unit: lux	Snow-covered mountains Snow fields Sandy beach, clear day in summer
	100,000	Clear day, mid-day (100,000) Clear day, mid-afternoon (35,000) Overcast day, mid-day (32,000)
	10,000	Overcast day, one hour after sunrise (2,000) Office lit by fluorescent lamps, near window (1,000) Clear day, one hour before sunset (1,000)
	1,000	Department store counter (500~700)
	500	Station wicket (650)
Video light recommended		Office lit by fluorescent lamps (400~500) Room lit by two 30 W Fluorescent lamps (300) Subway station platform (300)
	100	Arcade at night (150~200)
Video light required		Theater lobby (15~35) Candle light (10~15)
	10	

1-13. HINTS FOR BETTER SHOOTING

- Shoot with the sun at your back (front-lighting).
- For stable shooting, hold the upper arm firmly against the body.
- Make each scene 6–7 seconds in length for easier viewing. (See page 13)
- Mainly, use medium and close-up shots. (See page 14)
- Vary the angle. (See page 14)
- Light the subject sufficiently. (See page 13)

1-14. ORGANIZATION

—is the key

Before shooting, think about how one scene will lead into another scene. This will help you to create a program that has a sense of progression.

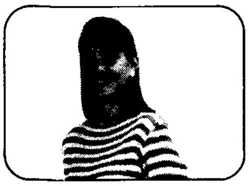
1-15. SCENE LENGTH

—not too long, not too short

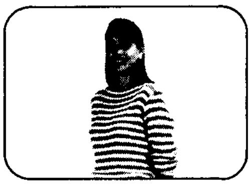
While there's no hard-and-fast rule, it is generally advisable to make each scene 6–7 seconds in length for easier viewing. A succession of short scenes can tire the viewer, while a very long scene can become boring.

1-16. FRAMING PEOPLE

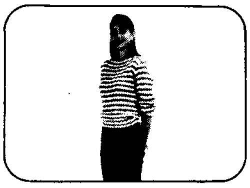
[a]



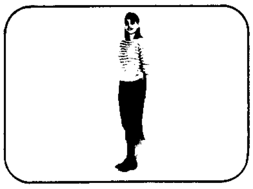
[b]



[c]



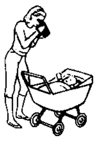
[d]



Basic shots for properly framing people are shown left.

- [a] Bust shot—Chest and above
- [b] Waist shot—Upper hips and above
- [c] Knee shot—Knees and above
- [d] Full shot—Entire body

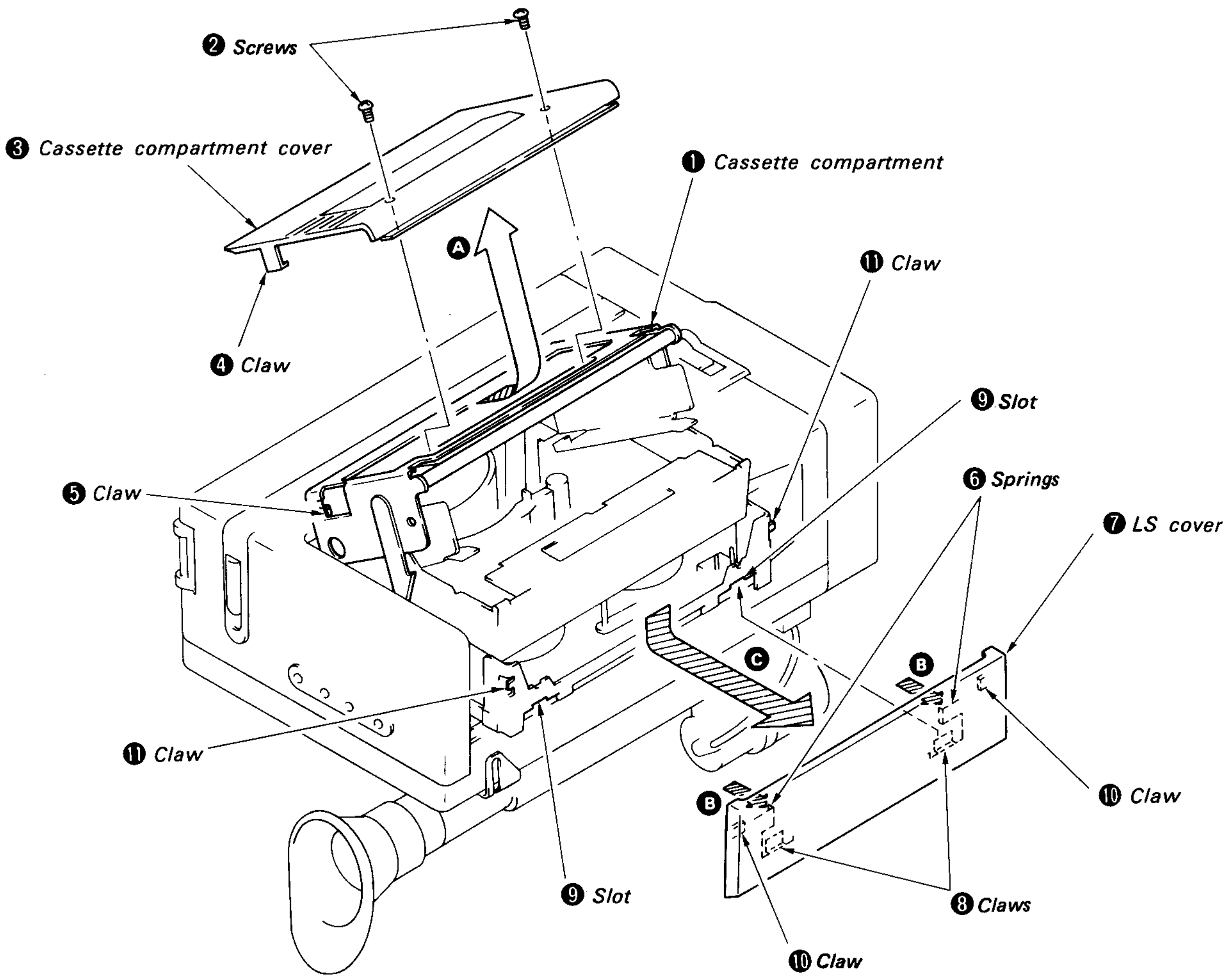
1-17. CAMERA POSITION AND ANGLE

Camera position and angle		**Screen effect**
Basic angle	The camera person stands, keeping the camera at eye level with the subject.	● This angle provides the most stable appearance on the screen and should be used as much as possible.
Low angle	This angle is used when the subject is higher than eye level.	● People appear taller from this angle and the impression is given that they are domineering and overpowering. ● In a thriller type production, feelings of terror or anxiety can be created.
High angle 	This angle is used for subjects below eye level.	● Used to shoot large numbers of people, flowers, etc., so each can be seen. ● Can be used to emphasize feelings of smallness and distance.

SECTION 2
DISASSEMBLY

2-1. REMOVAL OF CASSETTE COMPARTMENT COVER AND LS COVER

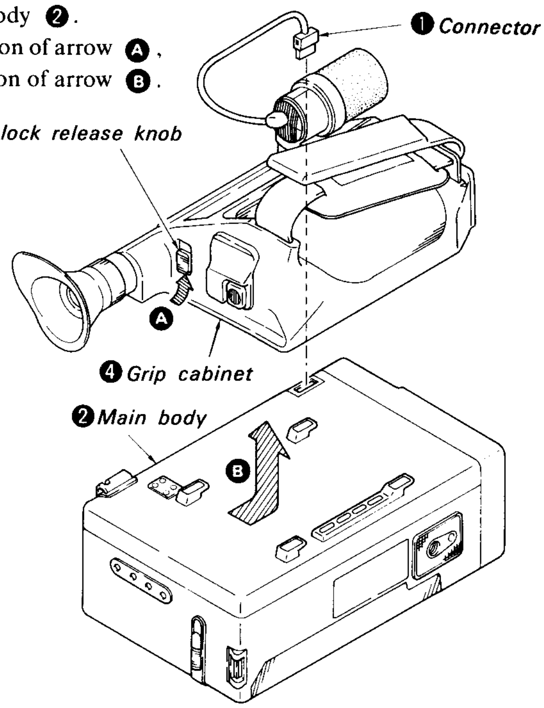
1) Turn EJECT knob to "ON", and put the casette compartment ❶ in the "UP" state.
2) Remove 2 screws ❷.
3) Remove cassette compartment cover ❸ by sliding in the direction of arrow 🅐.
   - * When installing, set so the 2 positions of the claws ❹ become fit into the 2 positions below claws ❺.
4) While inserting a thin flat blade screwdriver, etc. and pushing spring ❻ in the direction of arrow🅑,remove LS cover ❼ by sliding it in the direction of arrow 🅒.
   - * When installing, set so that claw ❽ comes to the slot and claw ❿ comes to rear of claw ⓫.



❷ Screws
❸ Cassette compartment cover
❶ Cassette compartment
🅐
⓫ Claw
❹ Claw
❾ Slot
❻ Springs
❺ Claw
❼ LS cover
🅑
🅒
🅑
⓫ Claw
❿ Claw
❾ Slot
❽ Claws
❿ Claw

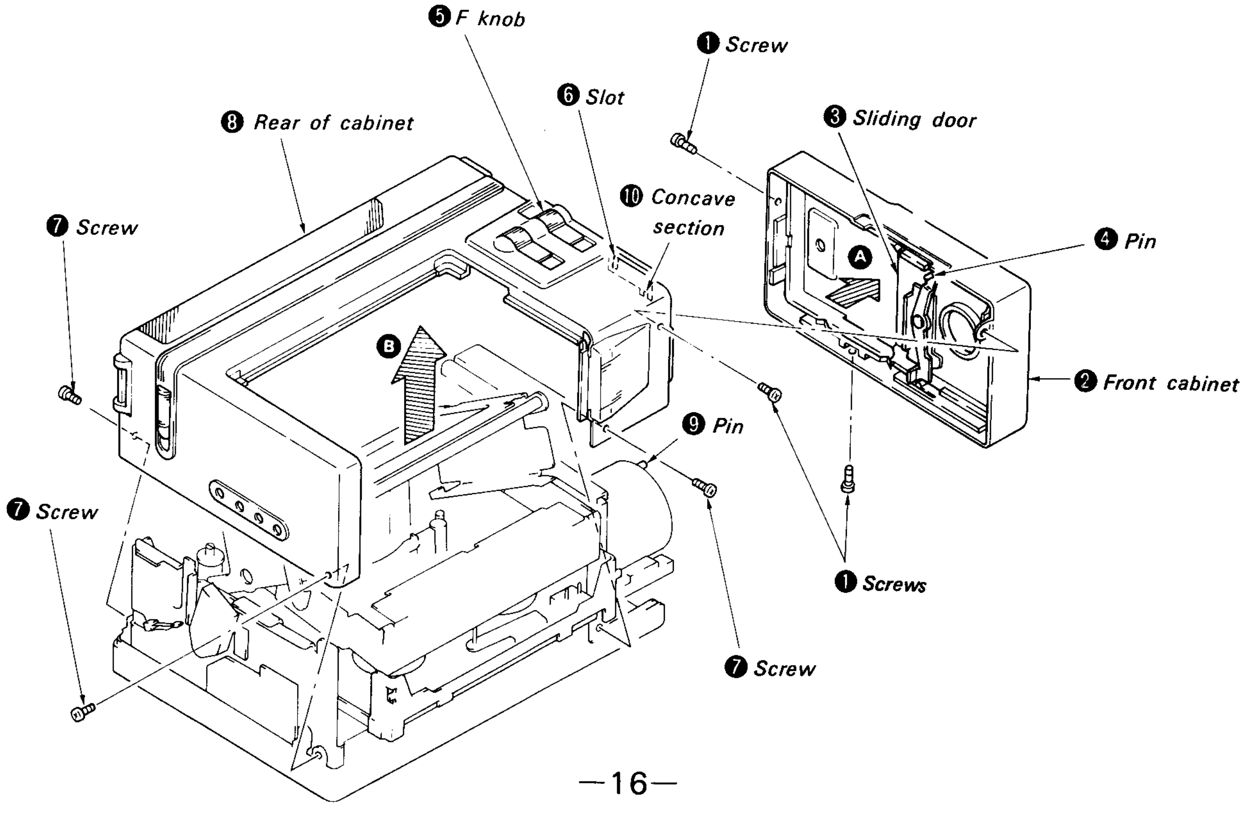
2-2. REMOVAL OF GRIP CABINET

1) Remove connector ❶ from the main body ❷.
2) Slide G lock release knob ❸ in the direction of arrow Ⓐ, and remove grip cabinet ❹ in the direction of arrow Ⓑ.


❶ Connector
❸ G lock release knob
Ⓐ
❹ Grip cabinet
❷ Main body
Ⓑ

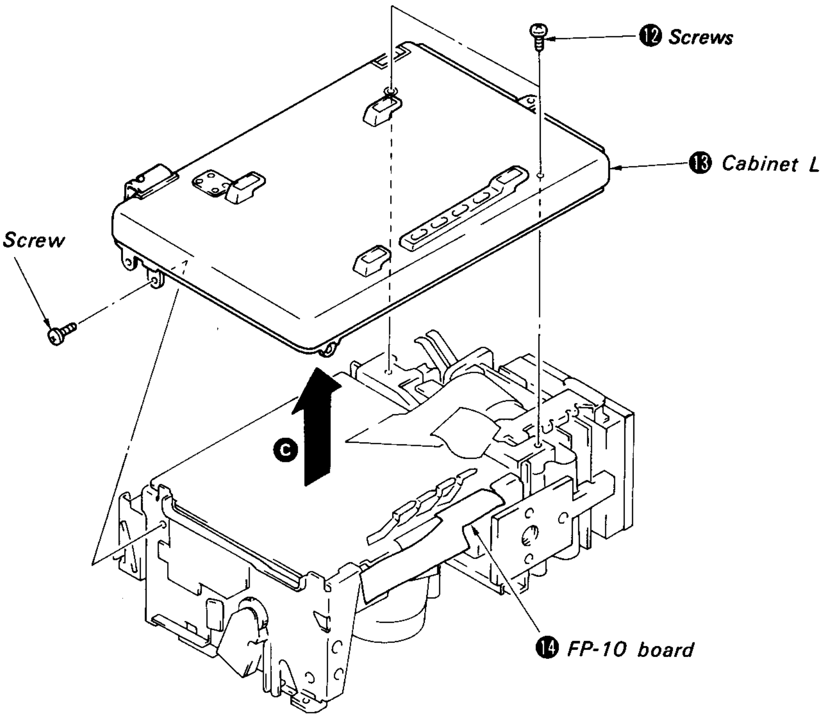
2-3. REMOVAL OF FRONT CABINET AND REAR CABINET

1) Remove 3 screws ❶.
2) Remove front cabinet ❷ in the direction of arrow Ⓐ.
   - * When installing, close the slide door ❸, put the F knob ❺ to the center position and set so that pin ❹ of F return arm is fitted into the slot ❻ of F locking plate.
3) Remove❽ screws ❼.
4) Remove rear of cabinet 8 in the direction of arrow Ⓑ.
   - * When installing, set so that pin ❾ of F ring fits into the concave section ❿ of F locking plate.


❺ F knob
❶ Screw
❻ Slot
❽ Rear of cabinet
❸ Sliding door
❿ Concave section
❼ Screw
❹ Pin
Ⓐ
Ⓑ
❷ Front cabinet
❾ Pin
❼ Screw
❶ Screws
❼ Screw

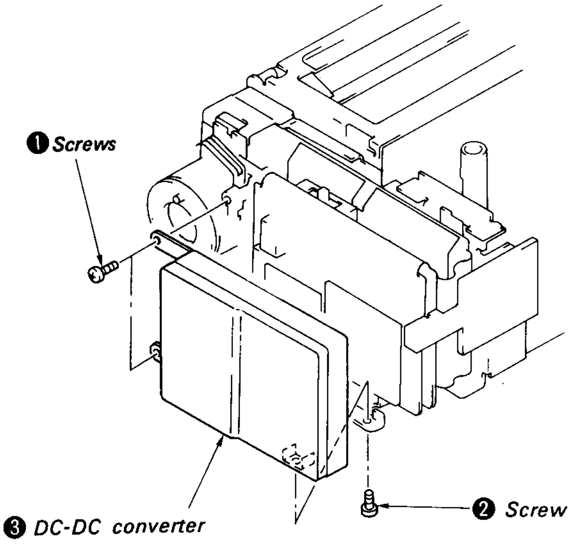
2-4. REMOVAL OF CABINET L

1) Remove 1 screw ⓫ .
2) Remove 2 screws ⓬ .
3) Remove cabinet L ⓭ in the direction of arrow Ⓒ.
   - * Caution should be exercised so that FP-10 board ⓮ is not entangled with the inner side of cabinet L ⓭ .
   - * When installing, attach screw ⓫ first and then screw ⓬ .


⓬ Screws
⓭ Cabinet L
⓫ Screw
Ⓒ
⓮ FP-10 board

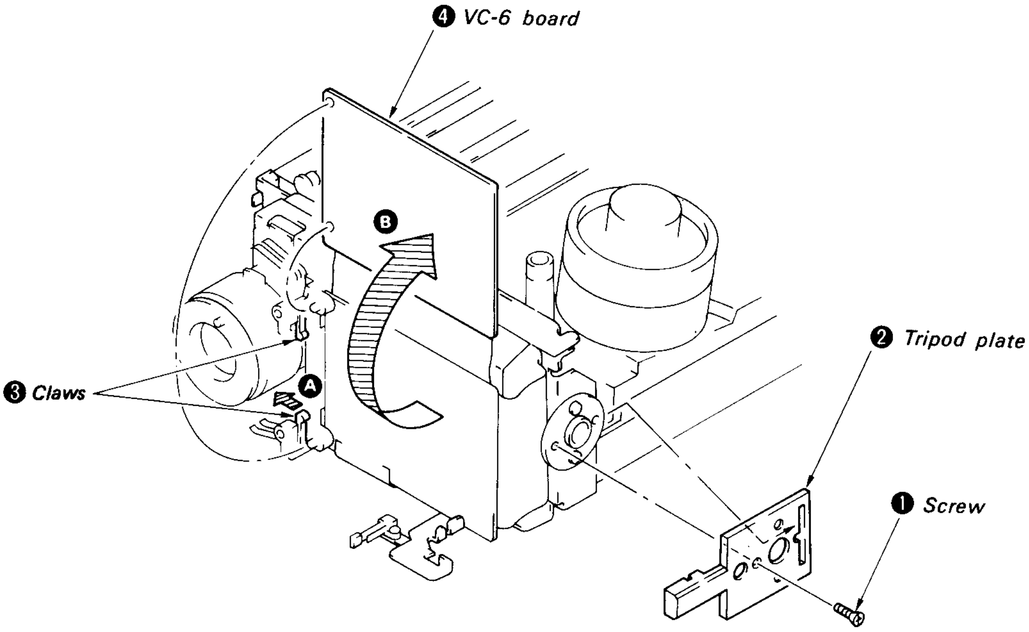
2-5. REMOVAL OF DC-DC CONVERTER

1) Remove 2 screws ❶ and 1 screw ❷.
2) Remove the DC-DC converter ❸.


❶ Screws
❸ DC-DC converter
❷ Screw

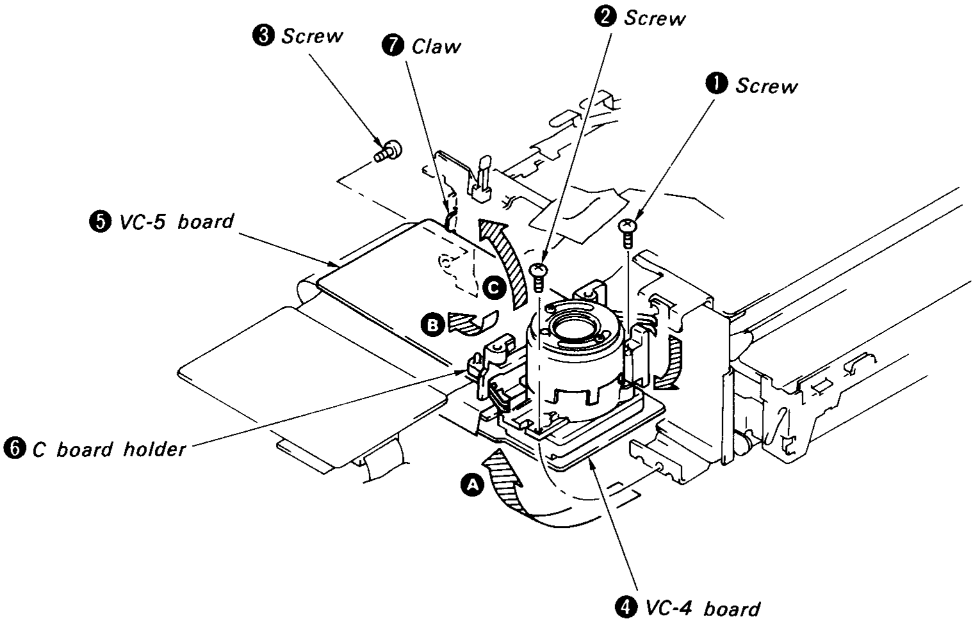
2-6. OPENING OF VC-6 BOARD

1) Remove 1 screw ❶.
2) Remove tripod plate ❷.
3) Bend claws ❸ at 2 positions in the direction of arrow Ⓐ, and remove from VC-6 board ❹.
4) Open VC-6 board ❹ in the direction of arrow Ⓑ.


❹ VC-6 board
Ⓑ
❷ Tripod plate
❸ Claws
Ⓐ
❶ Screw

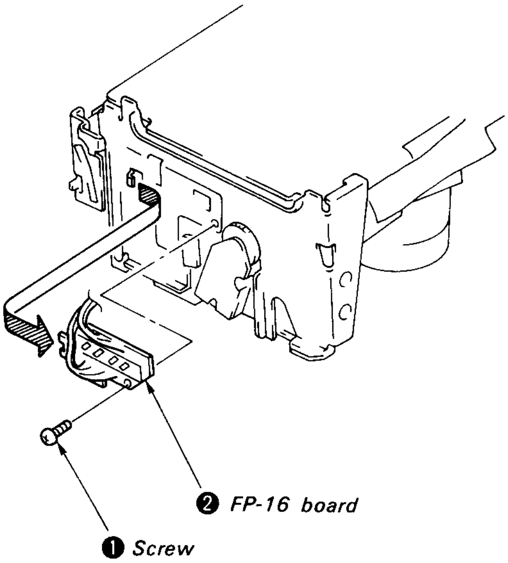
2-7. OPENING OF VC-4 BOARD AND VC-5 BOARD

1) Remove 1 screw ❶, 1 screw ❷, and 1 screw ❸.
2) Open VC-4 board ❹ in the direction of arrow Ⓐ.
3) Slide VC-5 board ❺ in the direction of arrowⒷ, and remove from C board holder ❻.
4) Remove VC-5 board ❺ from claw ❼, and open in the direction of arrow Ⓒ.


❸ Screw
❼ Claw
❷ Screw
❶ Screw
❺ VC-5 board
Ⓒ
Ⓑ
❻ C board holder
Ⓐ
❹ VC-4 board

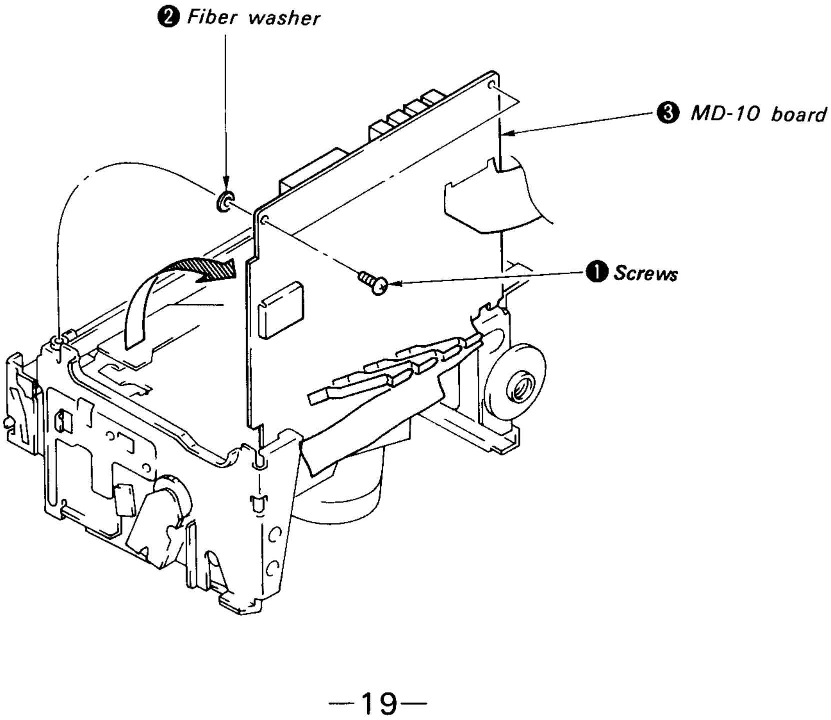
2-8. REMOVAL OF FP-16 BOARD

1) Remove 1 screw ❶.
2) Remove FP-16 board ❷ in the direction of arrow.


❷ FP-16 board
❶ Screw

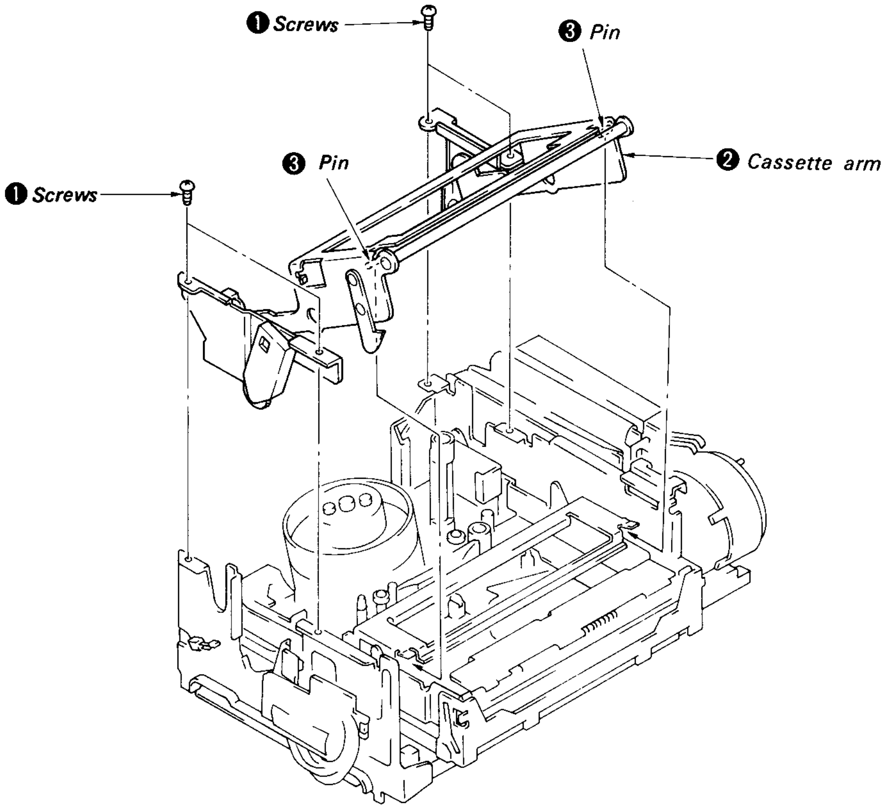
2-9. OPENING OF MD-10 BOARD

1) Remove 2 screws ❶ and 2 fiber washers ❷.
2) Open MD-10 board ❸ in the direction of arrow.
   * Caution should be exercised when installing MD-10 board so that the wiring from the board does not come into contact with the capstan motor.


❷ Fiber washer
❸ MD-10 board
❶ Screws

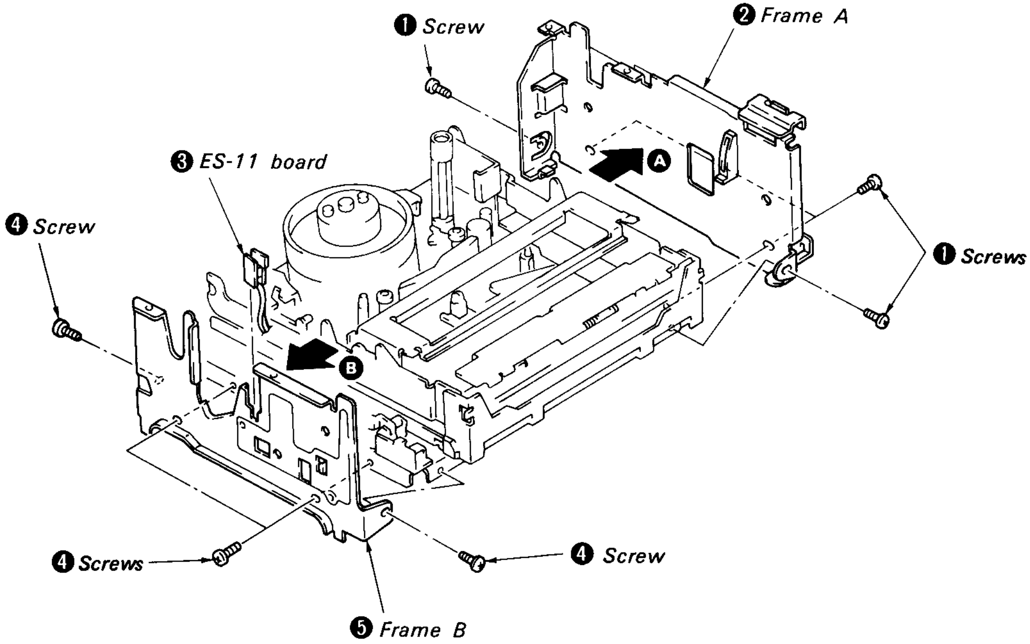
2-10. REMOVAL OF CASSETTE ARM

1) Remove 4 screws ❶.
2) Remove cassette arm ❷ in the upper direction.
   * When installing the cassette arm ❷, be sure that pin ❸ is inserted into the predetermined position.


❶ Screws
❸ Pin
❸ Pin
❷ Cassette arm
❶ Screws

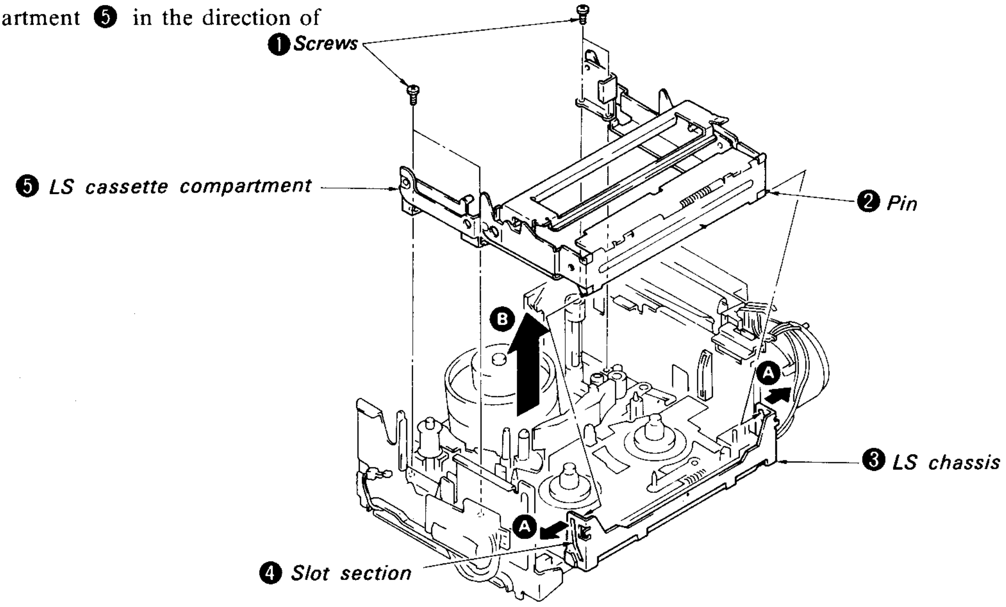
2-11. REMOVAL OF FRAMES A AND B

1) Remove 4 screws ❶.
2) Remove frame A ❷ in the direction of arrow Ⓐ.
3) Remove ES-11 board ❸ from frame B ❺.
4) Remove 4 screws ❹.
5) Remove frame B ❺ in the direction of arrow Ⓑ.


❶ Screw
❷ Frame A
❸ ES-11 board
Ⓐ
❹ Screw
❶ Screws
Ⓑ
❹ Screws
❹ Screw
❺ Frame B

2-12. REMOVAL OF LS CASSETTE COMPARTMENT

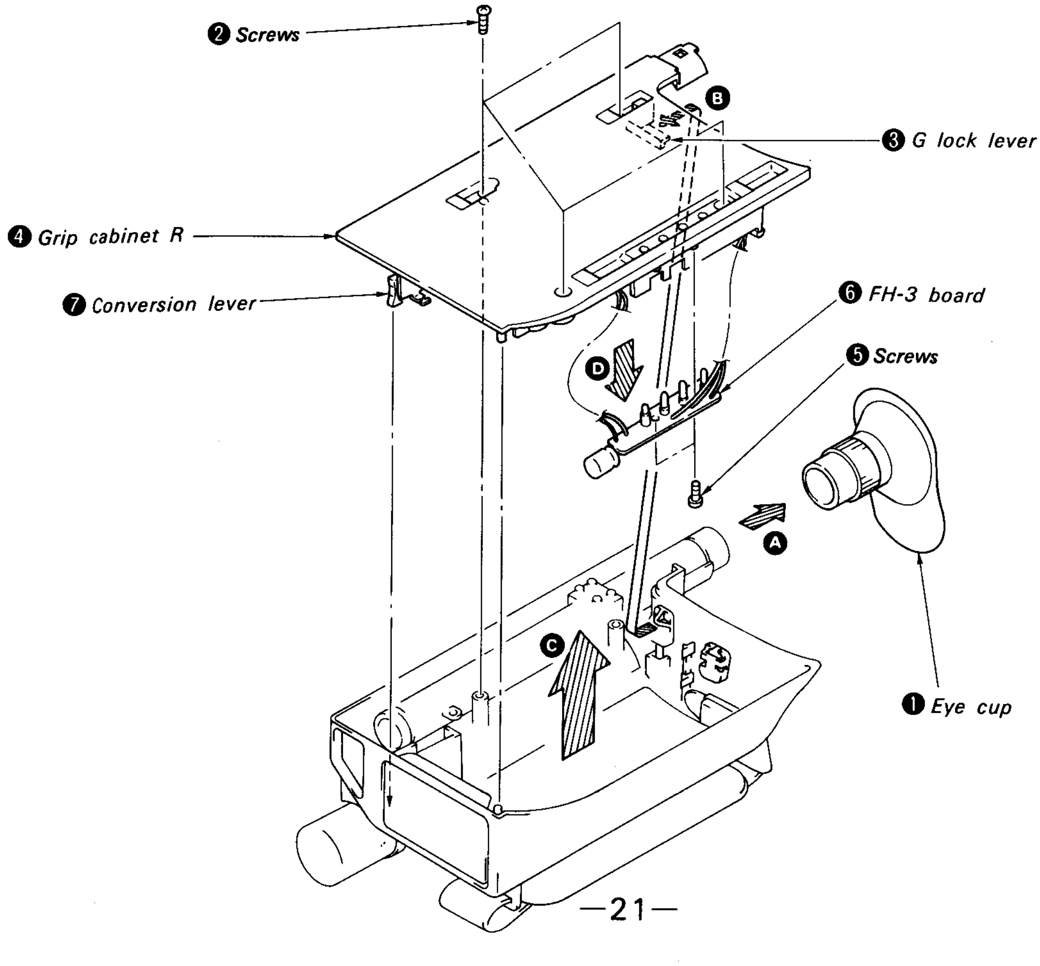
1) Remove 4 screws ❶.
2) Bend 2 positions of the slot section ❹ of LS chassis ❸ in the direction of arrow Ⓐ, and then remove 2 positions of pin ❷.
3) Remove LS cassette compartment ❺ in the direction of arrow Ⓑ.



❶ Screws
❺ LS cassette compartment
❷ Pin
Ⓑ
Ⓐ
❸ LS chassis
Ⓐ
❹ Slot section

2-13. REMOVAL OF FH-3 BOARD

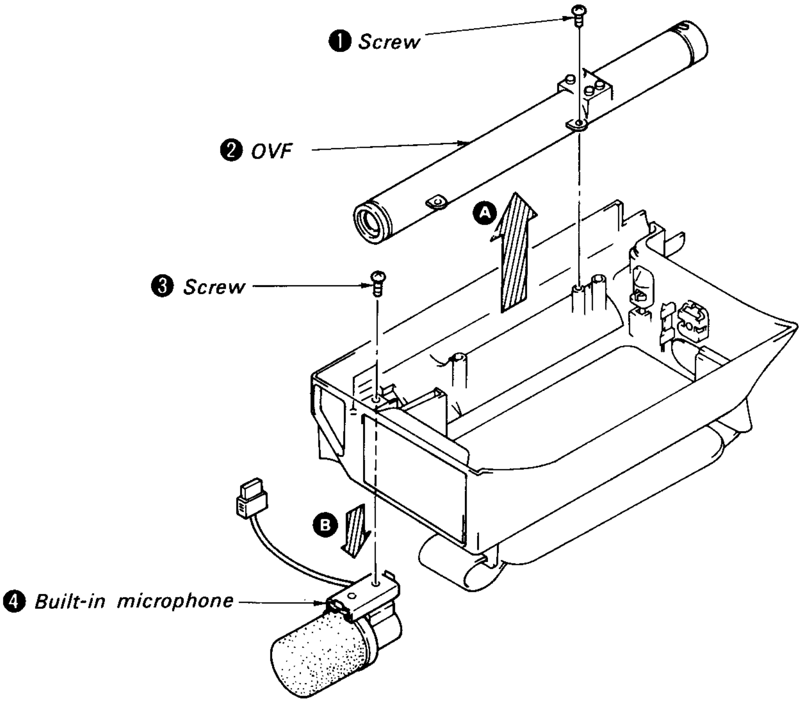
1) Remove eye cup ❶ in the direction of arrow Ⓐ.
2) Remove 4 screws ❷.
3) While removing G lock lever ❸ in the direction of arrow Ⓑ, remove grip cabinet ❹ in the direction of arrow Ⓒ.
4) Remove 2 screws ❺.
5) Remove FH-3 board ❻ in the direction of arrow Ⓓ.
   * When installing the grip cabinet ❹, set the conversion lever ❼ so that it comes to the predetermined position.



❷ Screws
Ⓑ
❸ G lock lever
❹ Grip cabinet R
❼ Conversion lever
❻ FH-3 board
❺ Screws
Ⓓ
Ⓐ
Ⓒ
❶ Eye cup

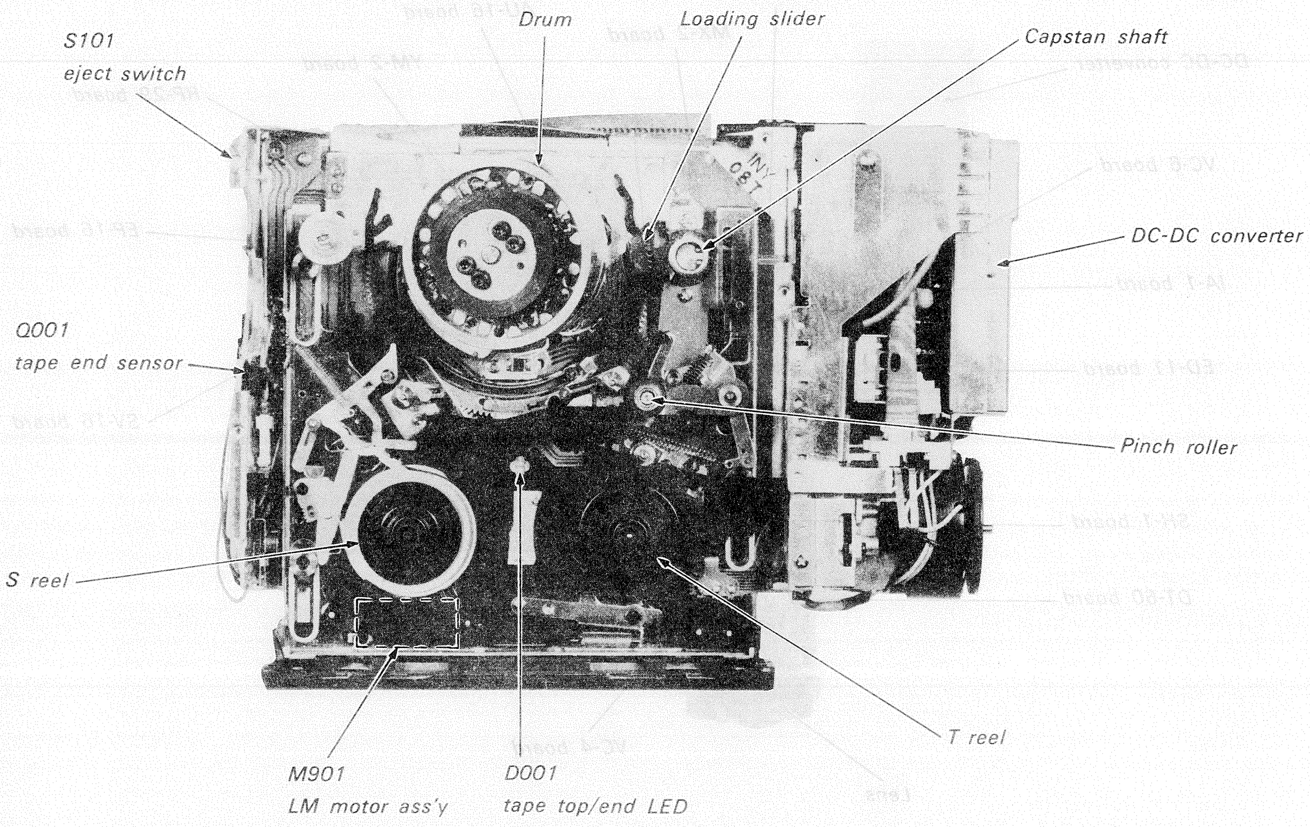
2-14. REMOVAL OF BUILT-IN MICROPHONE

1) Remove 1 screw ❶.
2) Remove OVF ❷ in the direction of arrow Ⓐ.
3) Remove 2 screws ❸, and remove the built-in microphone ❹ in the direction of arrow Ⓑ.

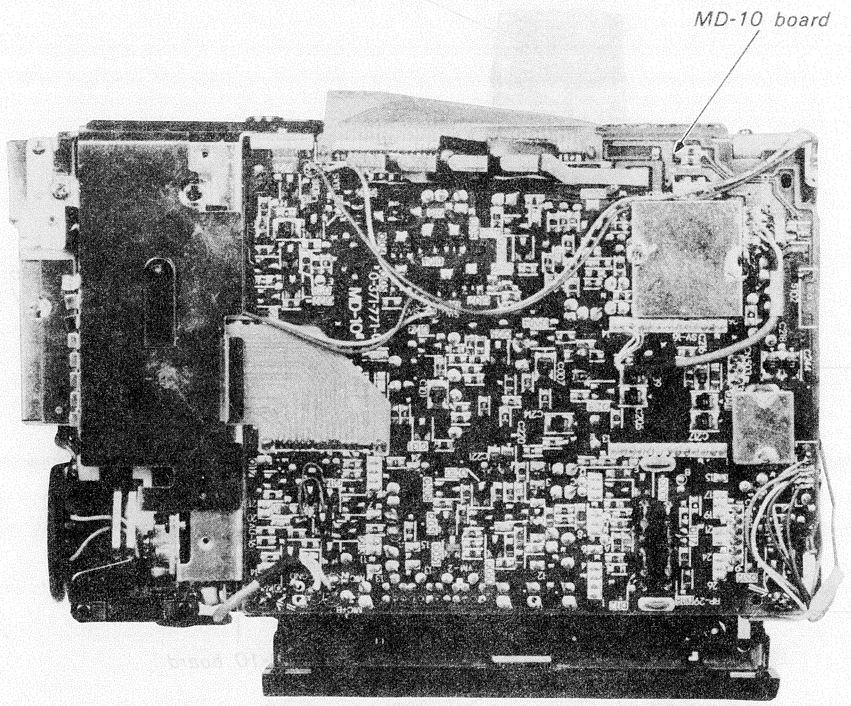

❶ Screw
❷ OVF
Ⓐ
❸ Screw
Ⓑ
❹ Built-in microphone

2-15. INTERNAL VIEWS

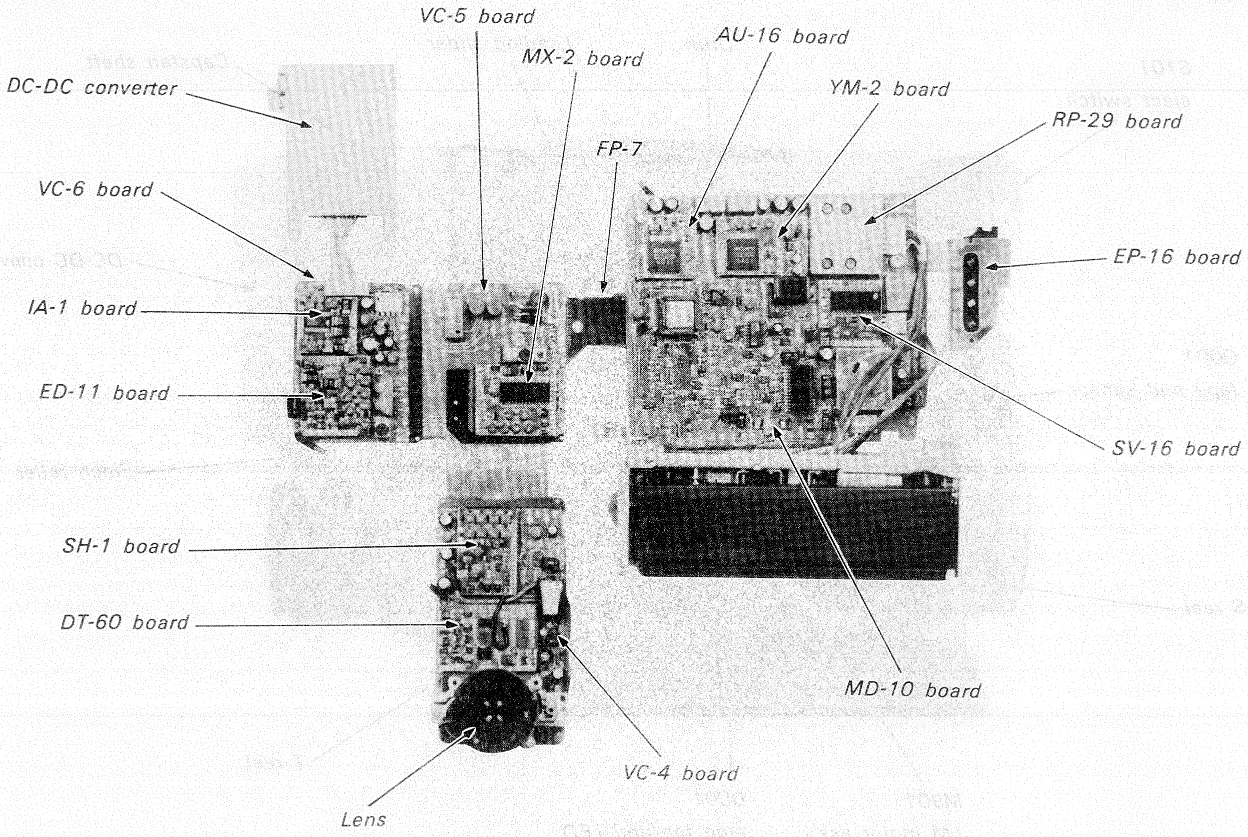
— Upper side —


S101
eject switch
Drum
Loading slider
Capstan shaft
DC-DC converter
Q001
tape end sensor
Pinch roller
S reel
T reel
M901
LM motor ass'y
D001
tape top/end LED

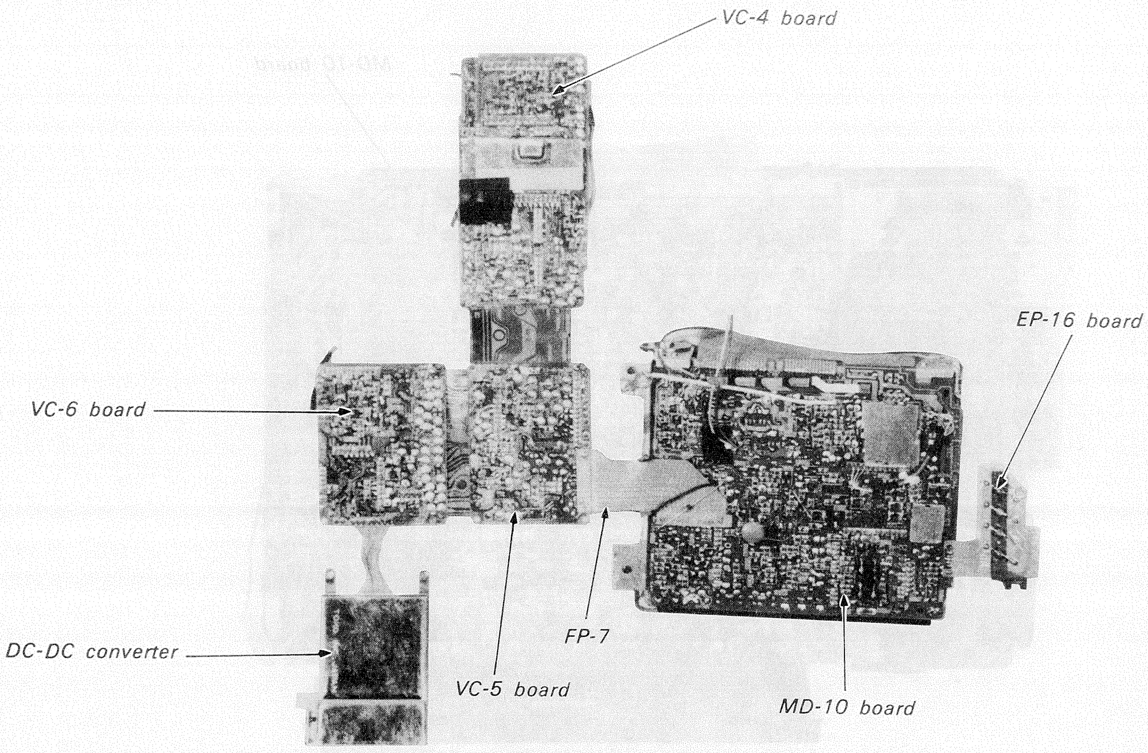
— Bottm side —



— Component side —

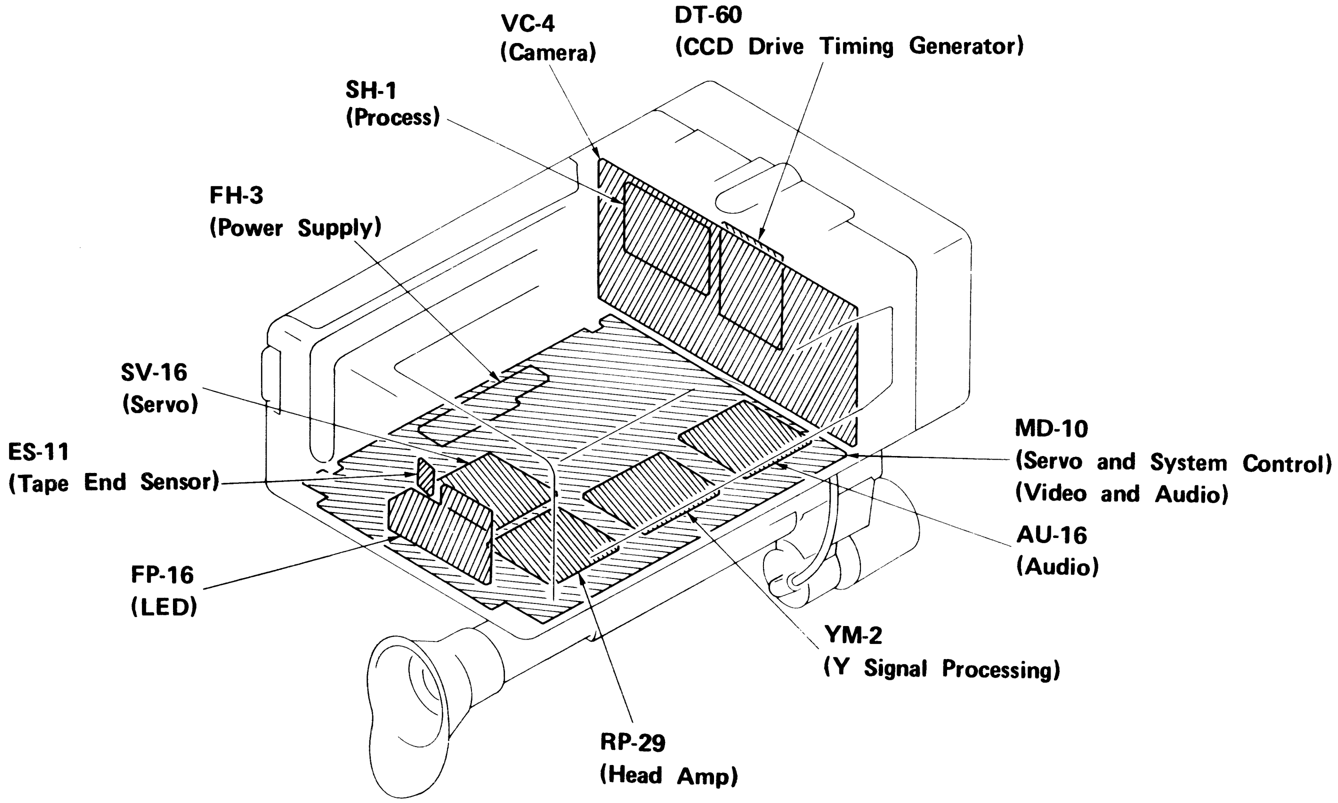

VC-5 board
MX-2 board
AU-16 board
YM-2 board
RP-29 board
DC-DC converter
FP-7
VC-6 board
EP-16 board
IA-1 board
ED-11 board
SV-16 board
SH-1 board
DT-60 board
MD-10 board
VC-4 board
Lens

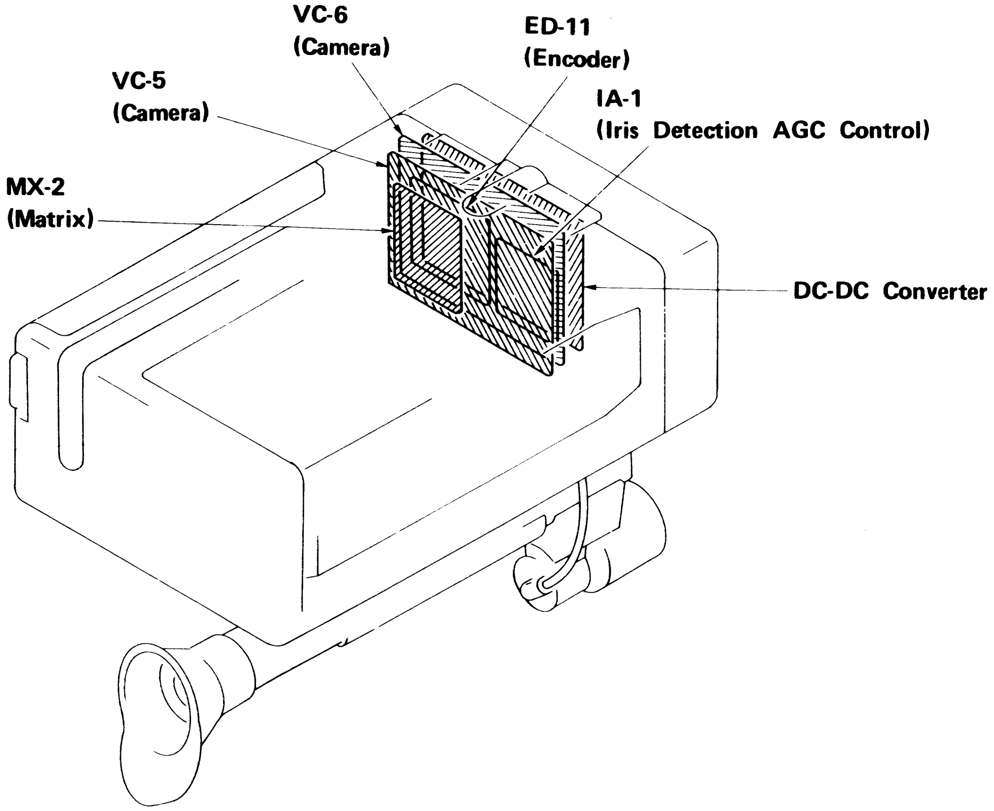
— Soldering side —


VC-4 board
EP-16 board
VC-6 board
DC-DC converter
FP-7
VC-5 board
MD-10 board

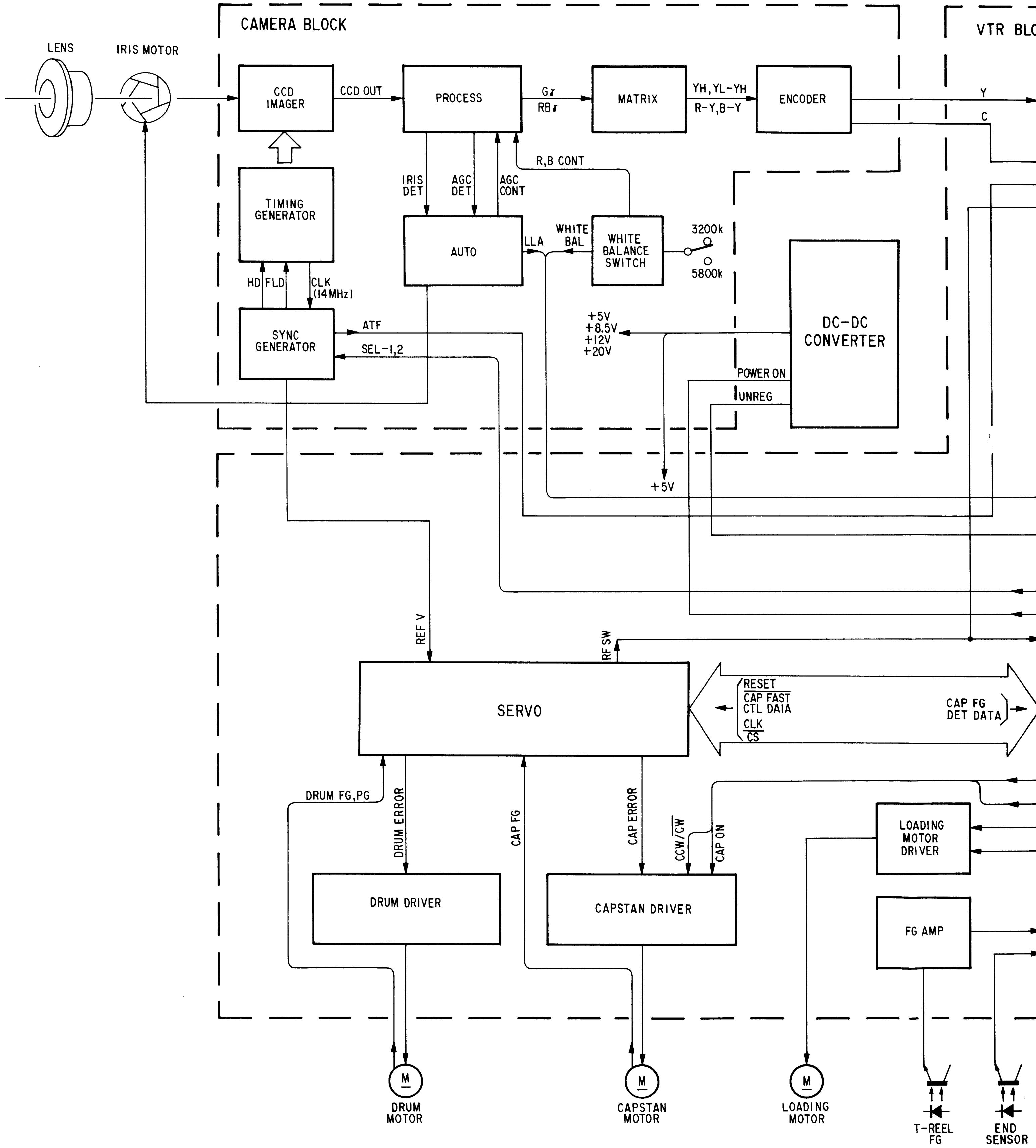
SECTION 3
DIAGRAMS

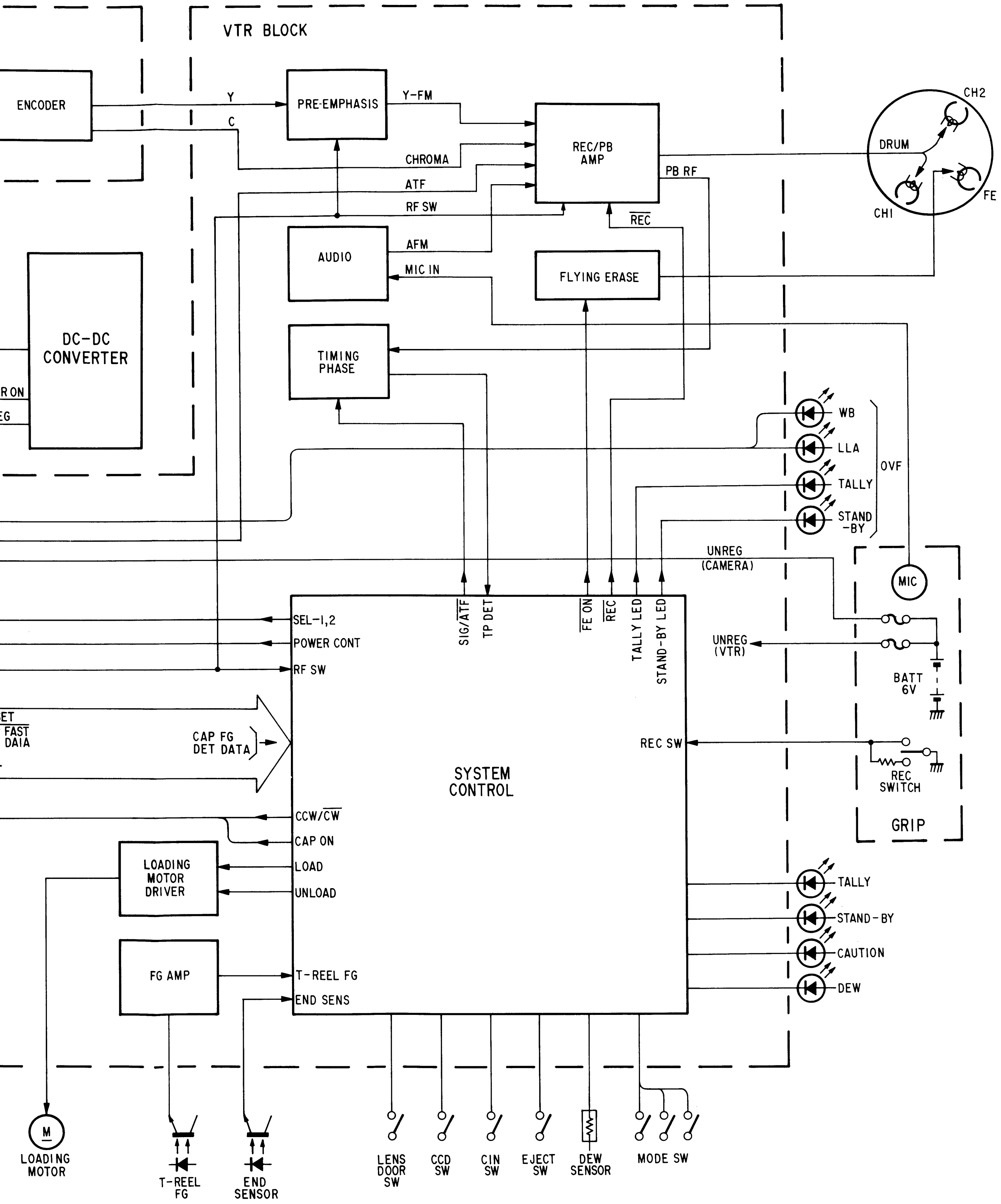
3-1. CIRCUIT BOARDS LOCATION


VC-4
(Camera)
DT-60
(CCD Drive Timing Generator)
SH-1
(Process)
FH-3
(Power Supply)
SV-16
(Servo)
ES-11
(Tape End Sensor)
FP-16
(LED)
MD-10
(Servo and System Control)
(Video and Audio)
AU-16
(Audio)
YM-2
(Y Signal Processing)
RP-29
(Head Amp)

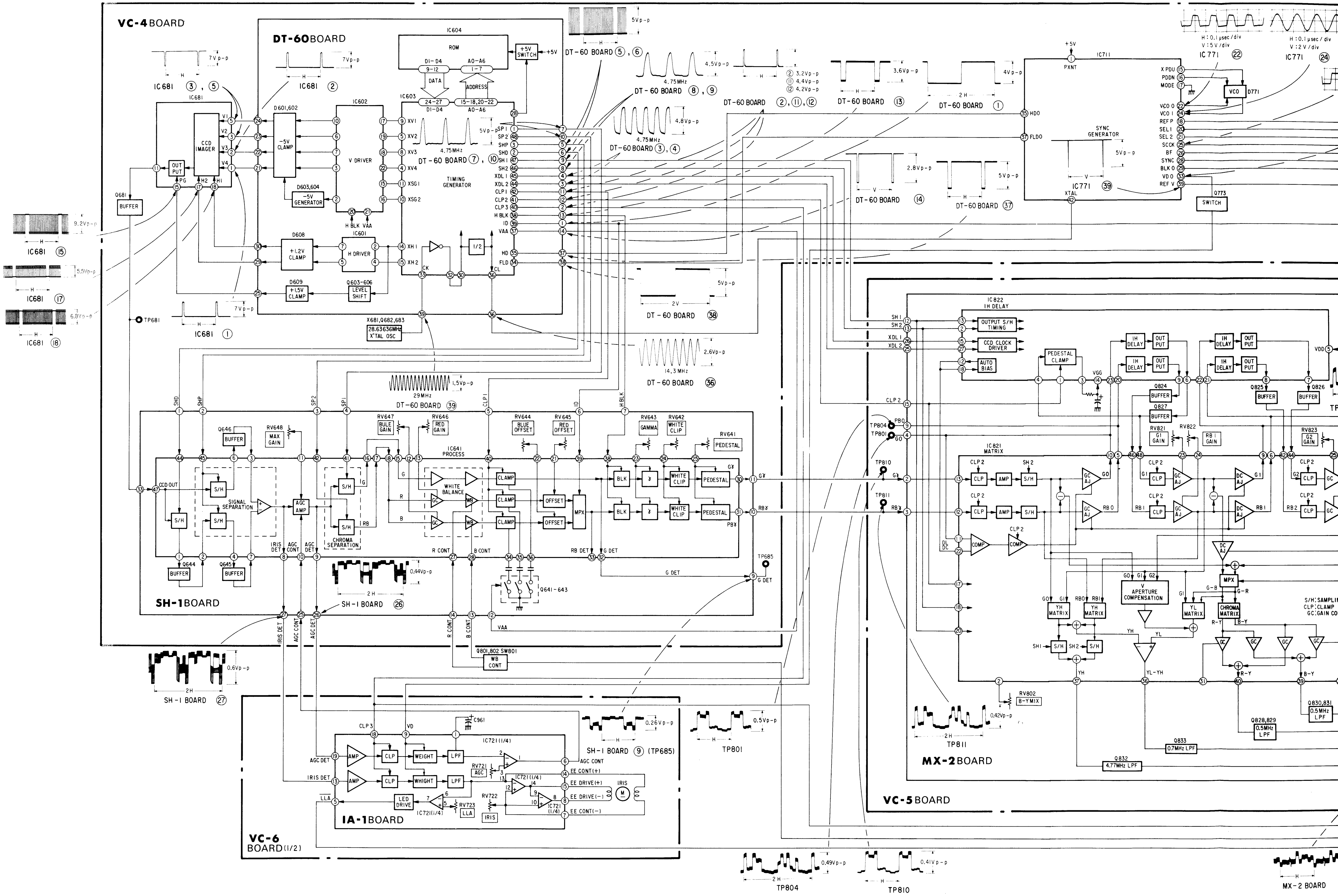

VC-6
(Camera)
ED-11
(Encoder)
IA-1
(Iris Detection AGC Control)
VC-5
(Camera)
MX-2
(Matrix)
DC-DC Converter

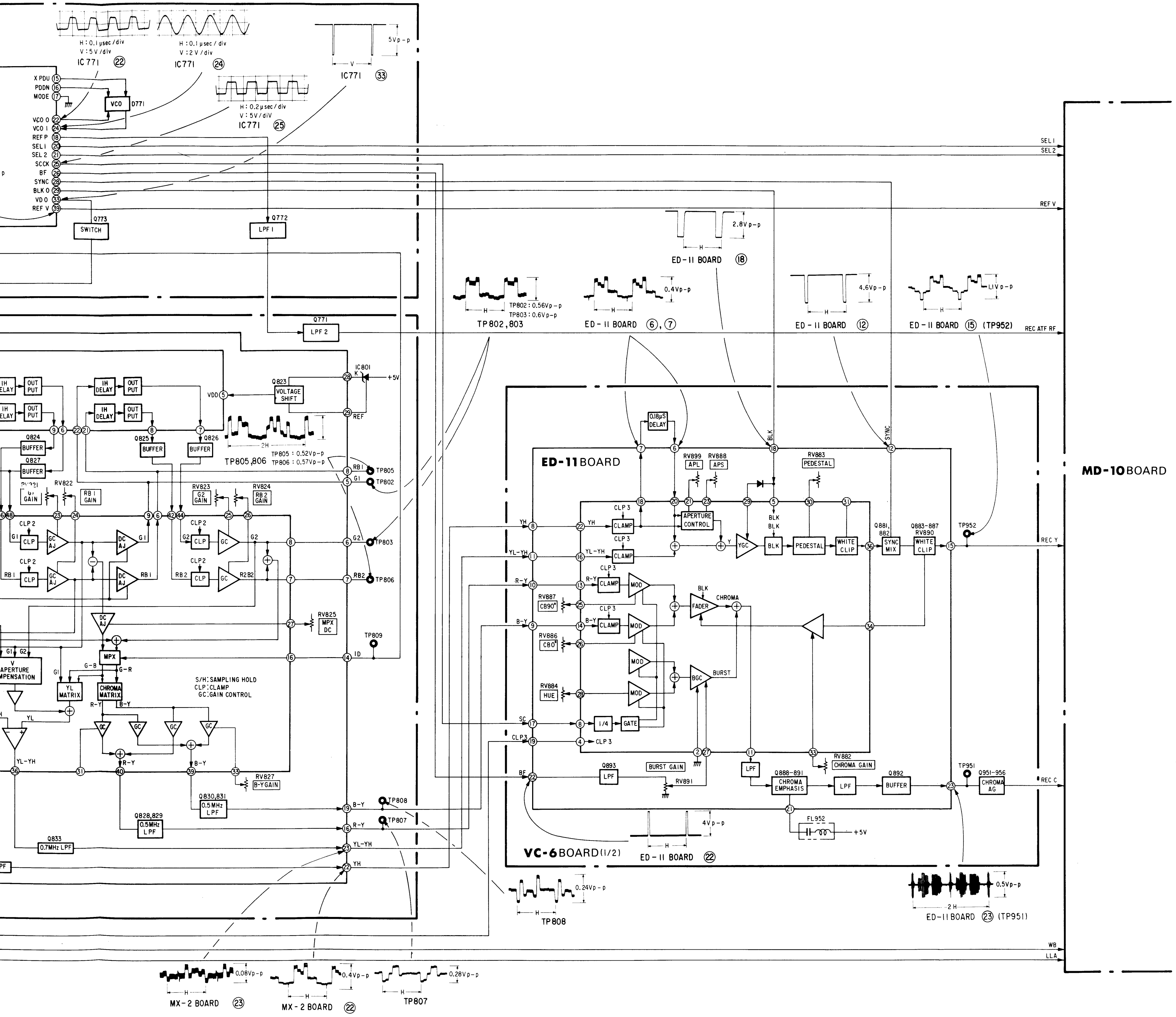
3-2. OVERALL BLOCK DIAGRAM


CAMERA BLOCK
VTR BLO
LENS
IRIS MOTOR
CCD IMAGER
CCD OUT
PROCESS
Gγ
RBγ
MATRIX
YH, YL-YH
R-Y, B-Y
ENCODER
Y
C
TIMING GENERATOR
IRIS DET
AGC DET
AGC CONT
R, B CONT
AUTO
LLA
WHITE BAL
WHITE BALANCE SWITCH
3200k
5800k
HD
FLD
CLK (14MHz)
SYNC GENERATOR
ATF
SEL-1, 2
+5V
+8.5V
+12V
+20V
DC-DC CONVERTER
POWER ON
UNREG
+5V
REF V
RF SW
SERVO
RESET
CAP FAST
CTL DATA
CLK
CS
CAP FG DET DATA
DRUM FG, PG
DRUM ERROR
CAP FG
CAP ERROR
CCW/CW
CAP ON
LOADING MOTOR DRIVER
DRUM DRIVER
CAPSTAN DRIVER
FG AMP
M
DRUM MOTOR
M
CAPSTAN MOTOR
M
LOADING MOTOR
T-REEL FG
END SENSOR


VTR BLOCK
ENCODER
Y
C
PRE-EMPHASIS
Y-FM
CHROMA
ATF
RF SW
REC/PB AMP
PB RF
REC
DRUM
CH2
CH1
FE
AUDIO
AFM
MIC IN
FLYING ERASE
DC-DC CONVERTER
R ON
EG
TIMING PHASE
WB
LLA
TALLY
STAND -BY
OVF
UNREG (CAMERA)
MIC
SIG/ATF
TP DET
FE ON
REC
TALLY LED
STAND-BY LED
SEL-1,2
POWER CONT
RF SW
UNREG (VTR)
BATT 6V
ET
FAST
DAIA
CAP FG DET DATA
REC SW
SYSTEM CONTROL
REC SWITCH
GRIP
CCW/CW
CAP ON
LOAD
UNLOAD
LOADING MOTOR DRIVER
TALLY
STAND-BY
CAUTION
DEW
FG AMP
T-REEL FG
END SENS
M
LOADING MOTOR
T-REEL FG
END SENSOR
LENS DOOR SW
CCD SW
CIN SW
EJECT SW
DEW SENSOR
MODE SW

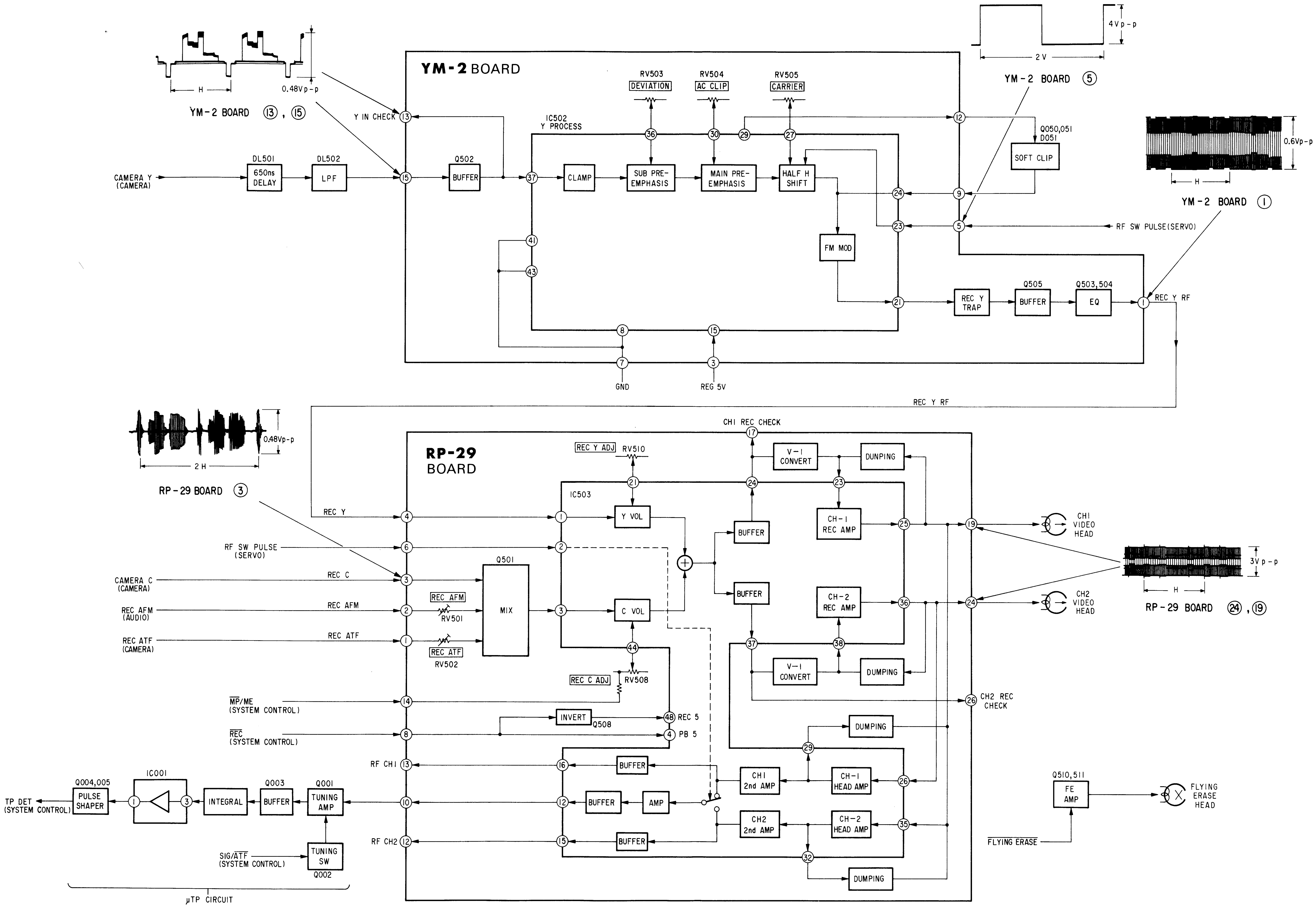
3-3. CAMERA BLOCK DIAGRAM


VC-4 BOARD
DT-60 BOARD
IC681 ③, ⑤
IC681 ②
IC681
CCD IMAGER
OUT PUT
V1
V2
V3
V4
PG
H2
H1
Q681
BUFFER
D601,602
-5V CLAMP
D603,604
-5V GENERATOR
IC602
V DRIVER
H BLK
VAA
D608
+1.2V CLAMP
IC601
H DRIVER
D609
+1.5V CLAMP
Q603-606
LEVEL SHIFT
IC604
ROM
D1-D4
9-12
A0-A6
1-7
DATA
ADDRESS
+5V SWITCH
+5V
IC603
24-27
D1-D4
15-18,20-22
A0-A6
XV1
XV2
XV3
XV4
XSG1
XSG2
XH1
XH2
TIMING GENERATOR
1/2
CK
CL
HD
FLD
SP1
SP2
SHP
SHD
SH1
SH2
XDL1
XDL2
CLP1
CLP2
CLP3
H BLK
ID
VAA
4.75MHz
DT-60 BOARD ⑦, ⑩
X681,682,683
28.63636MHz X'TAL OSC
IC681 ⑮
9.2Vp-p
IC681 ⑰
5.5Vp-p
IC681 ⑱
6.8Vp-p
TP681
IC681 ①
7Vp-p
DT-60 BOARD ⑤, ⑥
5Vp-p
4.5Vp-p
DT-60 BOARD ⑧, ⑨
4.8Vp-p
DT-60 BOARD ③, ④
② 3.2Vp-p
⑪ 4.4Vp-p
⑫ 4.2Vp-p
DT-60 BOARD ②, ⑪, ⑫
3.6Vp-p
DT-60 BOARD ⑬
4Vp-p
DT-60 BOARD ①
2.8Vp-p
DT-60 BOARD ⑭
DT-60 BOARD ㊲
DT-60 BOARD ㊳
2.6Vp-p
14.3MHz
DT-60 BOARD ㊱
1.5Vp-p
29MHz
DT-60 BOARD ㊴
IC711
PXNT
SYNC GENERATOR
HDO
FLDO
XTAL
IC771 ㊴
X PDU
PDDN
MODE
VCO O
VCO I
REF P
SEL 1
SEL 2
SCCK
BF
SYNC
BLK O
VD O
REF V
VCO
D771
Q773
SWITCH
H: 0.1μsec/div
V: 5V/div
IC771 ㉒
H: 0.1μsec/div
V: 2V/div
IC771 ㉔
SH-1 BOARD
Q646
BUFFER
RV648
MAX GAIN
RV647
BLUE GAIN
RV646
RED GAIN
IC641 PROCESS
CCD OUT
S/H
SIGNAL SEPARATION
AGC AMP
CHROMA SEPARATION
WHITE BALANCE
WB
GC
CLAMP
OFFSET
MPX
BLK
γ
WHITE CLIP
PEDESTAL
RV644
BLUE OFFSET
RV645
RED OFFSET
RV643
GAMMA
RV642
WHITE CLIP
RV641
PEDESTAL
Q644
BUFFER
Q645
BUFFER
IRIS DET
AGC CONT
AGC DET
R CONT
B CONT
RB DET
G DET
TP685
Q641-643
0.44Vp-p
SH-1 BOARD ㉖
0.6Vp-p
SH-1 BOARD ㉗
Q801,802 SW801
WB CONT
VC-6 BOARD(1/2)
IA-1 BOARD
CLP3
VD
C961
AMP
CLP
WEIGHT
LPF
IC721(1/4)
RV721
AGC
AGC CONT
EE CONT(+)
EE DRIVE(+)
EE DRIVE(-)
EE CONT(-)
IRIS
LLA
LED DRIVE
RV722
RV723
0.26Vp-p
SH-1 BOARD ⑨ (TP685)
0.5Vp-p
TP801
VC-5 BOARD
MX-2 BOARD
IC822
1H DELAY
OUTPUT S/H TIMING
CCD CLOCK DRIVER
AUTO BIAS
PEDESTAL CLAMP
VGG
1H DELAY
OUT PUT
Q824
BUFFER
Q827
BUFFER
RV821
G1 GAIN
RV822
RB1 GAIN
Q825
Q826
RV823
G2 GAIN
VDD
TP804
TP801
TP810
TP811
PB0
G0
IC821
MATRIX
CLP2
AMP
S/H
GC AJ
DC AJ
COMP
V APERTURE COMPENSATION
YH MATRIX
YL MATRIX
CHROMA MATRIX
YH
YL
YL-YH
R-Y
B-Y
G-R
G-B
RV802
B-Y MIX
0.42Vp-p
TP811
Q833
0.7MHz LPF
Q832
4.77MHz LPF
Q828,829
0.5MHz LPF
Q830,831
0.5MHz LPF
S/H: SAMPLI
CLP: CLAMP
GC: GAIN CO
0.49Vp-p
TP804
0.41Vp-p
TP810
MX-2 BOARD

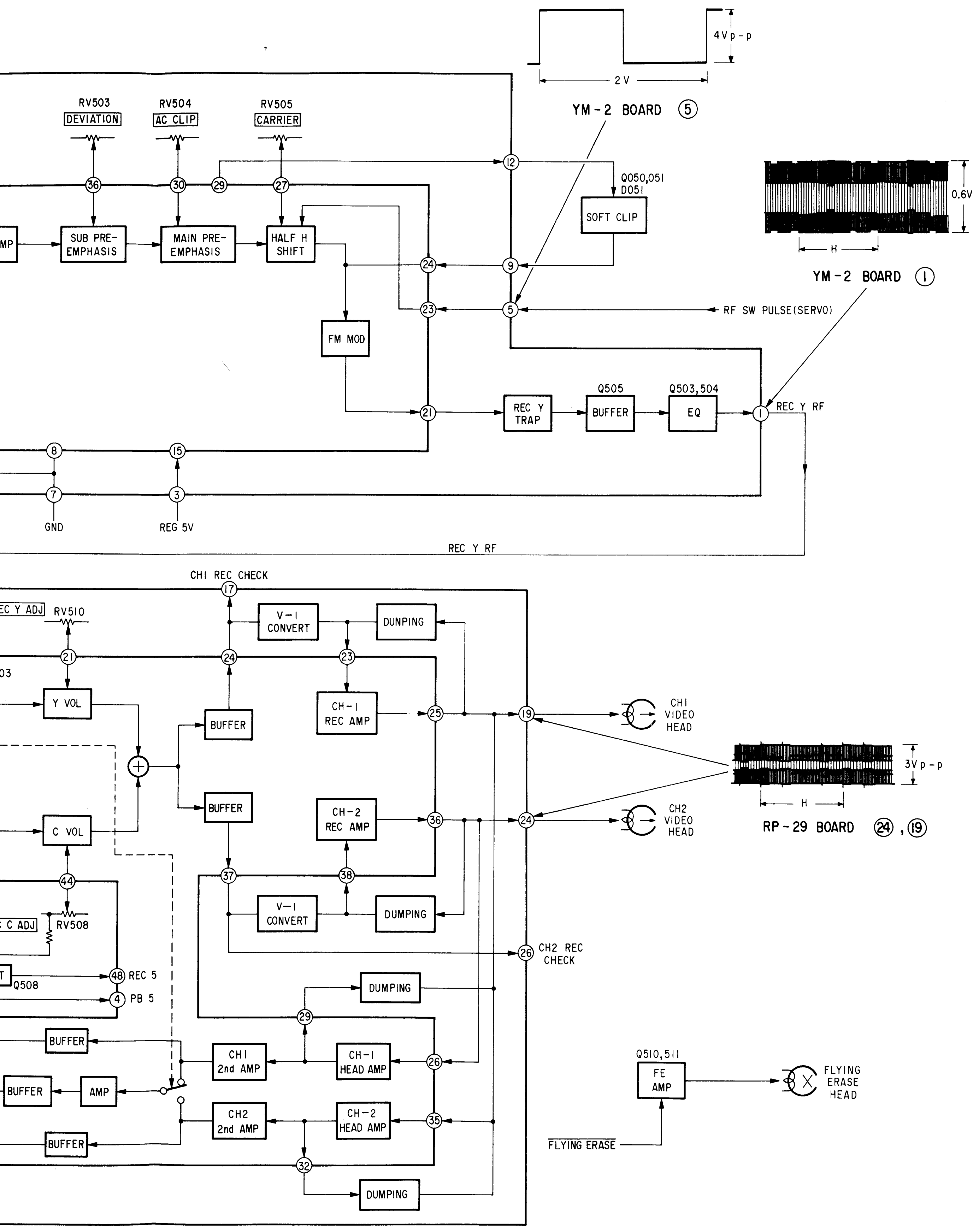


H : 0.1 μsec / div
V : 5 V / div
IC771 ㉒
H : 0.1 μsec / div
V : 2 V / div
IC771 ㉔
5Vp-p
IC771 ㉝
H : 0.2 μsec / div
V : 5V / div
IC771 ㉕
X PDU
PDDN
MODE
VCO
D771
VCO O
VCO I
REF P
SEL1
SEL2
SCCK
BF
SYNC
BLK O
VDO
REF V
Q773
SWITCH
Q772
LPF1
Q771
LPF2
SEL1
SEL2
REF V
REC ATF RF
2.8Vp-p
ED-11 BOARD ⑱
TP802 : 0.56Vp-p
TP803 : 0.6Vp-p
TP802, 803
0.4Vp-p
ED-11 BOARD ⑥, ⑦
4.6Vp-p
ED-11 BOARD ⑫
1.1Vp-p
ED-11 BOARD ⑮ (TP952)
IC801
+5V
VDD
Q823
VOLTAGE SHIFT
REF
1H DELAY
OUT PUT
Q824
BUFFER
Q827
BUFFER
Q825
BUFFER
Q826
BUFFER
TP805 : 0.52Vp-p
TP806 : 0.57Vp-p
TP805, 806
RB1
G1
TP805
TP802
RV822
RB1 GAIN
RV823
G2 GAIN
RV824
RB2 GAIN
CLP2
CLP
GC AJ
DC AJ
G1
G2
RB1
RB2
R2B2
GC
TP803
TP806
RV825
MPX DC
TP809
ID
MPX
V APERTURE COMPENSATION
YL MATRIX
CHROMA MATRIX
G-B
G-R
R-Y
B-Y
YL
YL-YH
S/H : SAMPLING HOLD
CLP : CLAMP
GC : GAIN CONTROL
RV827
B-Y GAIN
Q830, 831
0.5MHz LPF
Q828, 829
0.5MHz LPF
Q833
0.7MHz LPF
TP808
TP807
YH
0.18μS DELAY
RV899
APL
RV888
APS
RV883
PEDESTAL
ED-11 BOARD
CLP3
CLAMP
APERTURE CONTROL
YGC
BLK
PEDESTAL
WHITE CLIP
Q881, 882
SYNC MIX
Q883-887
RV890
WHITE CLIP
TP952
REC Y
MD-10 BOARD
RV887
CB90°
RV886
CB0°
RV884
HUE
MOD
FADER
CHROMA
BGC
BURST
1/4
GATE
SC
CLP3
BF
Q893
LPF
BURST GAIN
RV891
RV882
CHROMA GAIN
LPF
Q888-891
CHROMA EMPHASIS
Q892
BUFFER
TP951
Q951-956
CHROMA AG
REC C
FL952
+5V
4Vp-p
ED-11 BOARD ㉒
VC-6 BOARD (1/2)
0.24Vp-p
TP808
0.5Vp-p
2H
ED-11 BOARD ㉓ (TP951)
WB
LLA
0.08Vp-p
MX-2 BOARD ㉓
0.4Vp-p
MX-2 BOARD ㉒
0.28Vp-p
TP807

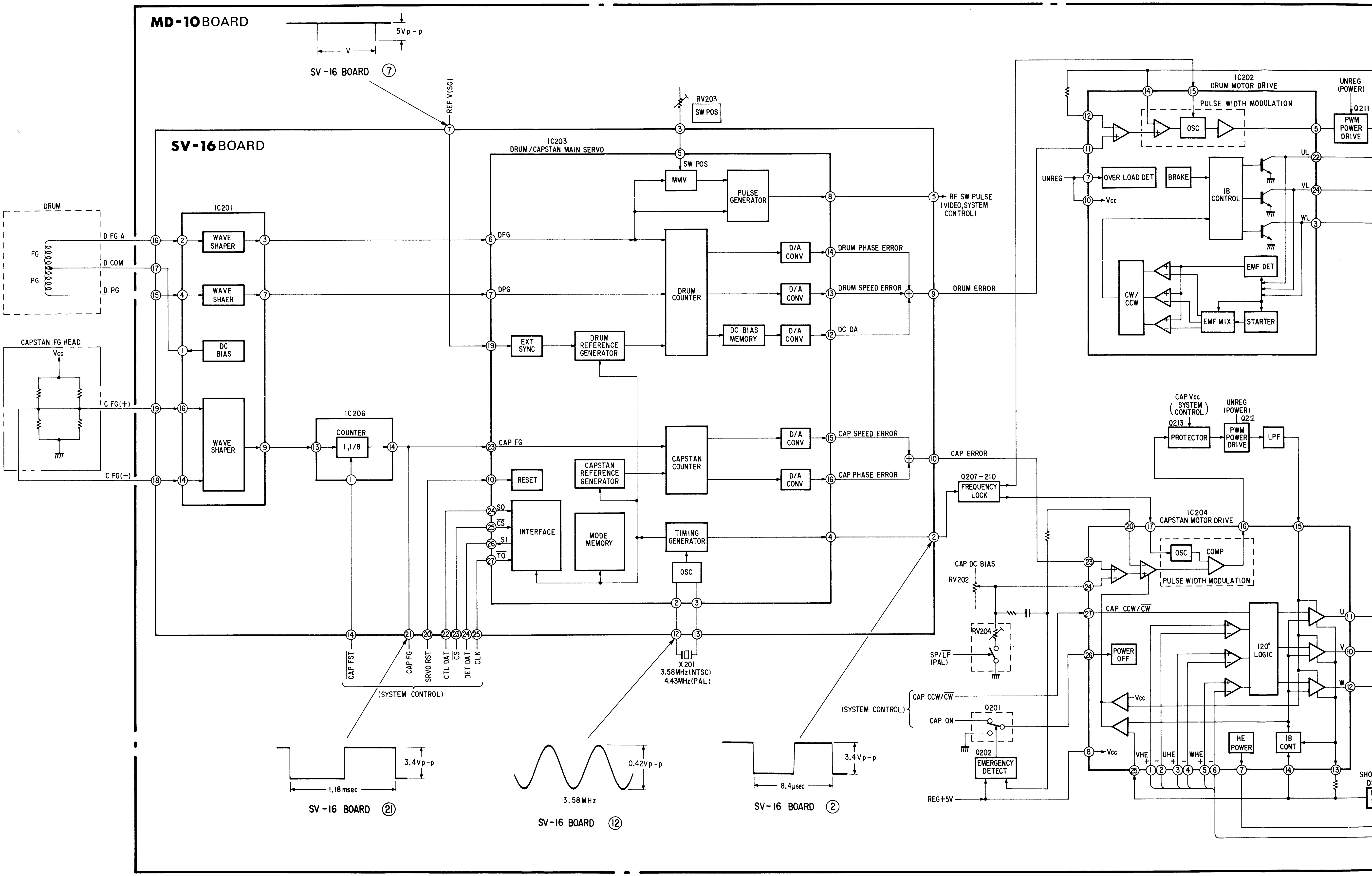
3-4. VIDEO BLOCK DIAGRAM

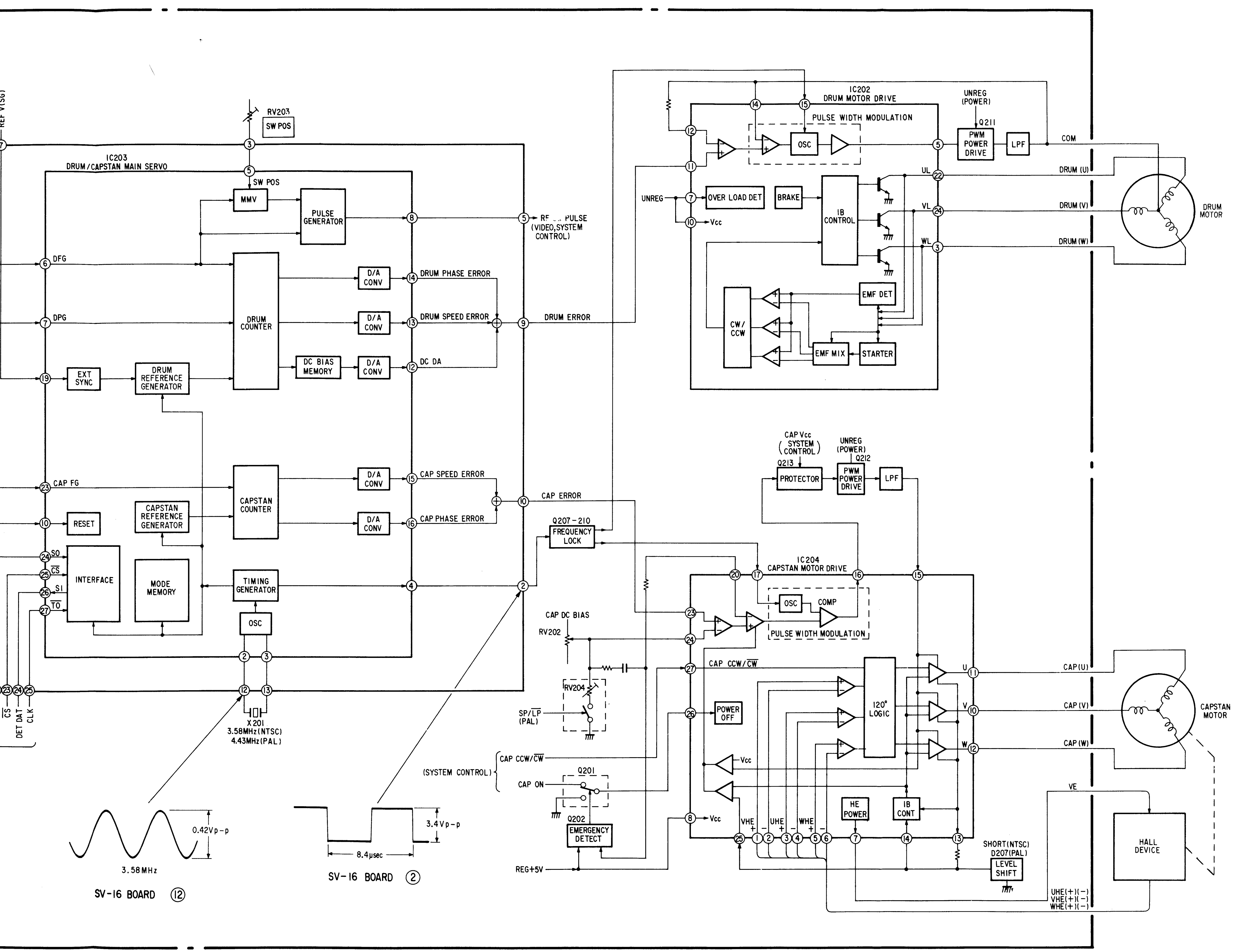


H
0.48Vp-p
YM-2 BOARD ⑬, ⑮
YM-2 BOARD
RV503
DEVIATION
RV504
AC CLIP
RV505
CARRIER
Y IN CHECK
IC502
Y PROCESS
CAMERA Y
(CAMERA)
DL501
650ns DELAY
DL502
LPF
Q502
BUFFER
CLAMP
SUB PRE-EMPHASIS
MAIN PRE-EMPHASIS
HALF H SHIFT
FM MOD
REC Y TRAP
Q505
BUFFER
Q503,504
EQ
REC Y RF
GND
REG 5V
4Vp-p
2V
YM-2 BOARD ⑤
Q050,051
D051
SOFT CLIP
0.6Vp-p
YM-2 BOARD ①
RF SW PULSE(SERVO)
REC Y RF
0.48Vp-p
2H
RP-29 BOARD ③
RP-29
BOARD
CH1 REC CHECK
REC Y ADJ
RV510
IC503
Y VOL
V-I CONVERT
DUNPING
BUFFER
CH-1 REC AMP
CH1 VIDEO HEAD
REC Y
RF SW PULSE
(SERVO)
Q501
MIX
CAMERA C
(CAMERA)
REC C
REC AFM
(AUDIO)
REC AFM
RV501
REC ATF
(CAMERA)
REC ATF
RV502
C VOL
CH-2 REC AMP
CH2 VIDEO HEAD
3Vp-p
H
RP-29 BOARD ㉔, ⑲
REC C ADJ
RV508
V-I CONVERT
DUMPING
CH2 REC CHECK
MP/ME
(SYSTEM CONTROL)
INVERT
Q508
REC 5
REC
(SYSTEM CONTROL)
PB 5
DUMPING
RF CH1
BUFFER
CH1 2nd AMP
CH-1 HEAD AMP
Q510,511
FE AMP
FLYING ERASE HEAD
Q004,005
PULSE SHAPER
IC001
Q003
BUFFER
Q001
TUNING AMP
TP DET
(SYSTEM CONTROL)
INTEGRAL
BUFFER
AMP
CH2 2nd AMP
CH-2 HEAD AMP
RF CH2
BUFFER
SIG/ATF
(SYSTEM CONTROL)
TUNING SW
Q002
DUMPING
FLYING ERASE
μTP CIRCUIT

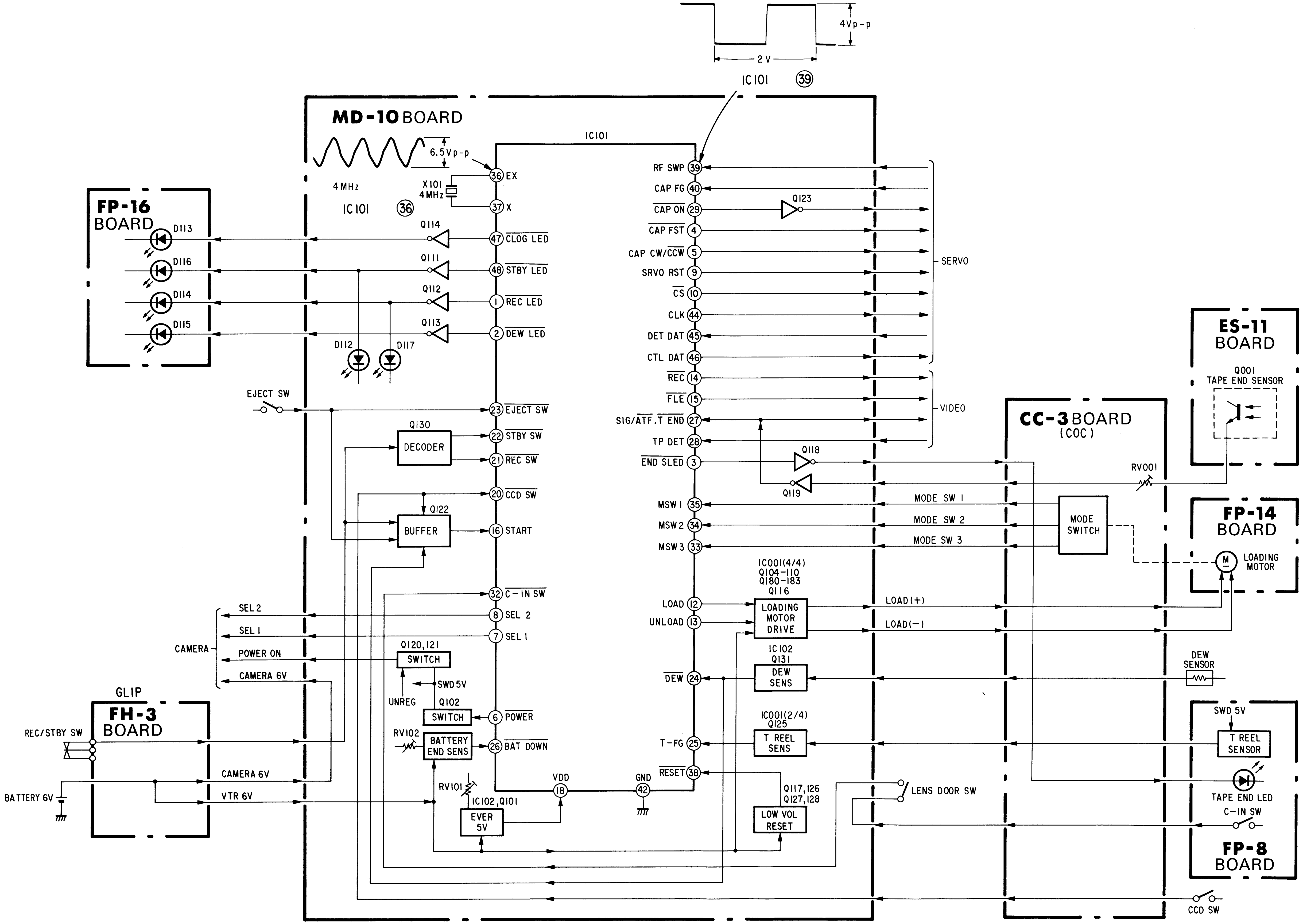

4Vp-p
2V
YM-2 BOARD ⑤
RV503
DEVIATION
RV504
AC CLIP
RV505
CARRIER
Q050,051
D051
SOFT CLIP
0.6Vp-p
H
YM-2 BOARD ①
MP
SUB PRE-EMPHASIS
MAIN PRE-EMPHASIS
HALF H SHIFT
FM MOD
RF SW PULSE(SERVO)
REC Y TRAP
Q505
BUFFER
Q503,504
EQ
REC Y RF
GND
REG 5V
REC Y RF
CH1 REC CHECK
EC Y ADJ
RV510
03
Y VOL
V-I CONVERT
DUNPING
BUFFER
CH-1 REC AMP
CH1 VIDEO HEAD
3Vp-p
H
RP-29 BOARD ㉔,⑲
BUFFER
CH-2 REC AMP
CH2 VIDEO HEAD
C VOL
C ADJ
RV508
V-I CONVERT
DUMPING
CH2 REC CHECK
REC 5
PB 5
Q508
DUMPING
BUFFER
CH1 2nd AMP
CH-1 HEAD AMP
BUFFER
AMP
CH2 2nd AMP
CH-2 HEAD AMP
BUFFER
DUMPING
Q510,511
FE AMP
FLYING ERASE
FLYING ERASE HEAD

3-5. SERVO BLOCK DIAGRAM


MD-10 BOARD
5Vp-p
V
SV-16 BOARD ⑦
REF V(SG)
RV203
SW POS
SV-16 BOARD
IC203
DRUM/CAPSTAN MAIN SERVO
SW POS
MMV
PULSE GENERATOR
RF SW PULSE (VIDEO,SYSTEM CONTROL)
DRUM
FG
PG
D FG A
D COM
D PG
IC201
WAVE SHAPER
WAVE SHAER
DC BIAS
DFG
DPG
DRUM COUNTER
D/A CONV
DRUM PHASE ERROR
DRUM SPEED ERROR
DRUM ERROR
DC BIAS MEMORY
DC DA
EXT SYNC
DRUM REFERENCE GENERATOR
CAPSTAN FG HEAD
Vcc
C FG(+)
C FG(−)
WAVE SHAPER
IC206
COUNTER
1,1/8
CAP FG
CAPSTAN COUNTER
CAP SPEED ERROR
CAP ERROR
CAP PHASE ERROR
RESET
CAPSTAN REFERENCE GENERATOR
SO
CS
SI
TO
INTERFACE
MODE MEMORY
TIMING GENERATOR
OSC
X201
3.58MHz(NTSC)
4.43MHz(PAL)
CAP FST
CAP FG
SRVO RST
CTL DAT
CS
DET DAT
CLK
(SYSTEM CONTROL)
3.4Vp-p
1.18msec
SV-16 BOARD ㉑
0.42Vp-p
3.58MHz
SV-16 BOARD ⑫
3.4Vp-p
8.4μsec
SV-16 BOARD ②
IC202
DRUM MOTOR DRIVE
PULSE WIDTH MODULATION
OSC
UNREG (POWER)
Q211
PWM POWER DRIVE
UNREG
OVER LOAD DET
BRAKE
IB CONTROL
Vcc
UL
VL
WL
EMF DET
CW/CCW
EMF MIX
STARTER
CAP Vcc (SYSTEM CONTROL)
Q213
PROTECTOR
UNREG (POWER)
Q212
PWM POWER DRIVE
LPF
Q207-210
FREQUENCY LOCK
IC204
CAPSTAN MOTOR DRIVE
OSC
COMP
PULSE WIDTH MODULATION
CAP DC BIAS
RV202
RV204
SP/LP (PAL)
CAP CCW/CW
POWER OFF
120° LOGIC
U
V
W
(SYSTEM CONTROL)
CAP CCW/CW
CAP ON
Q201
Q202
EMERGENCY DETECT
Vcc
Vcc
VHE
UHE
WHE
HE POWER
IB CONT
REG+5V
SHO


IC203
DRUM/CAPSTAN MAIN SERVO
RV203
SW POS
MMV
PULSE GENERATOR
REF ... PULSE (VIDEO,SYSTEM CONTROL)
DFG
DPG
EXT SYNC
DRUM REFERENCE GENERATOR
DRUM COUNTER
D/A CONV
DC BIAS MEMORY
DRUM PHASE ERROR
DRUM SPEED ERROR
DC DA
DRUM ERROR
CAP FG
RESET
CAPSTAN REFERENCE GENERATOR
CAPSTAN COUNTER
CAP SPEED ERROR
CAP PHASE ERROR
CAP ERROR
S0
CS
S1
TO
INTERFACE
MODE MEMORY
TIMING GENERATOR
OSC
X201
3.58MHz(NTSC)
4.43MHz(PAL)
CS
DET DAT
CLK
REF V(SG)
0.42Vp-p
3.58MHz
SV-16 BOARD ⑫
3.4Vp-p
8.4μsec
SV-16 BOARD ②
IC202
DRUM MOTOR DRIVE
PULSE WIDTH MODULATION
UNREG
Vcc
OVER LOAD DET
BRAKE
IB CONTROL
EMF DET
CW/CCW
EMF MIX
STARTER
UNREG (POWER)
Q211
PWM POWER DRIVE
LPF
COM
UL
VL
WL
DRUM (U)
DRUM (V)
DRUM (W)
DRUM MOTOR
Q207-210
FREQUENCY LOCK
CAP Vcc (SYSTEM CONTROL)
Q213
PROTECTOR
UNREG (POWER)
Q212
PWM POWER DRIVE
LPF
IC204
CAPSTAN MOTOR DRIVE
OSC
COMP
PULSE WIDTH MODULATION
CAP DC BIAS
RV202
RV204
SP/LP (PAL)
CAP CCW/CW
POWER OFF
120° LOGIC
(SYSTEM CONTROL)
CAP CCW/CW
CAP ON
Q201
Q202
EMERGENCY DETECT
REG+5V
Vcc
VHE
UHE
WHE
HE POWER
IB CONT
U
V
W
CAP (U)
CAP (V)
CAP (W)
CAPSTAN MOTOR
VE
HALL DEVICE
SHORT(NTSC)
D207(PAL)
LEVEL SHIFT
UHE(+)(-)
VHE(+)(-)
WHE(+)(-)

3-6. SYSTEM CONTROL BLOCK DIAGRAM


4Vp-p
2V
IC101 ㊴
MD-10 BOARD
6.5Vp-p
4MHz
IC101 ㊱
X101
4MHz
IC101
RF SWP ㊴
CAP FG ㊵
CAP ON ㉙
CAP FST ④
CAP CW/CCW ⑤
SRVO RST ⑨
CS ⑩
CLK ㊹
DET DAT ㊺
CTL DAT ㊻
REC ⑭
FLE ⑮
SIG/ATF.T END ㉗
TP DET ㉘
END SLED ③
SERVO
VIDEO
Q123
Q118
Q119
㊱ EX
㊲ X
Q114
㊼ CLOG LED
Q111
㊽ STBY LED
Q112
① REC LED
Q113
② DEW LED
D112
D117
FP-16 BOARD
D113
D116
D114
D115
EJECT SW
㉓ EJECT SW
Q130
DECODER
㉒ STBY SW
㉑ REC SW
⑳ CCD SW
Q122
BUFFER
⑯ START
㉜ C-IN SW
⑧ SEL 2
⑦ SEL 1
CAMERA
SEL 2
SEL 1
POWER ON
CAMERA 6V
Q120,121
SWITCH
SWD 5V
UNREG
Q102
SWITCH
⑥ POWER
RV102
BATTERY END SENS
㉖ BAT DOWN
RV101
IC102, Q101
EVER 5V
VDD ⑱
GND ㊷
GLIP
FH-3 BOARD
REC/STBY SW
BATTERY 6V
CAMERA 6V
VTR 6V
MSW1 ㉟
MSW2 ㉞
MSW3 ㉝
MODE SW 1
MODE SW 2
MODE SW 3
IC001(4/4)
Q104-110
Q180-183
Q116
LOAD ⑫
UNLOAD ⑬
LOADING MOTOR DRIVE
LOAD(+)
LOAD(−)
IC102
Q131
DEW SENS
DEW ㉔
IC001(2/4)
Q125
T REEL SENS
T-FG ㉕
RESET ㊳
Q117,126
Q127,128
LOW VOL RESET
LENS DOOR SW
CC-3 BOARD
(COC)
RV001
MODE SWITCH
ES-11 BOARD
Q001
TAPE END SENSOR
FP-14 BOARD
M
LOADING MOTOR
DEW SENSOR
SWD 5V
T REEL SENSOR
TAPE END LED
C-IN SW
FP-8 BOARD
CCD SW

3-7. SYSTEM CONTROL LNTERFACE (IC101)

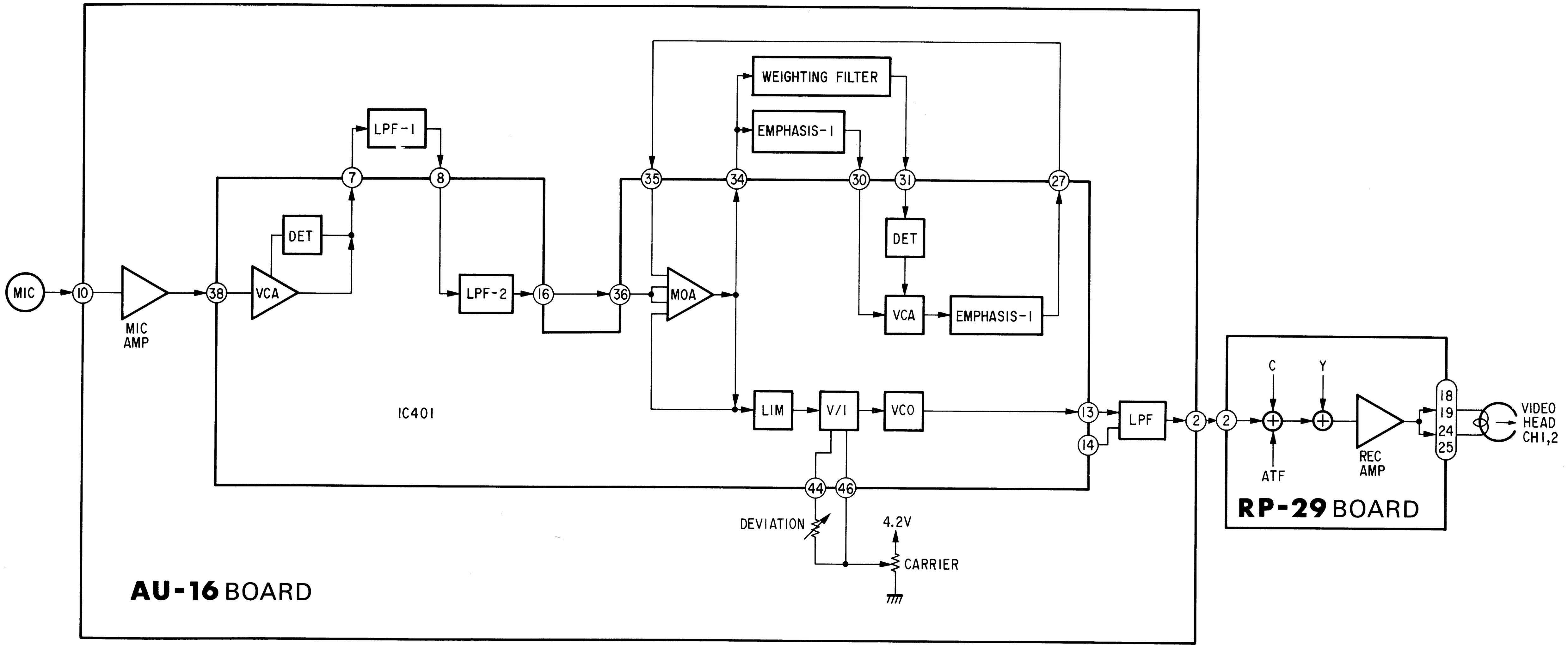
Signal name	I/O	IC101 PIN No.	REC	STANDBY	PB (Connect pin ㉙ of IC101 to ground)
REC LED	O	1	L	H	H
STBY LED	O	2	H	L	H
END S LED	O	3	*1	H	*1
CAP FST	O	4	H	H	H
CAP CCW/CW	O	5	H	H	H
POWER	O	6	L	L	L
SRVO RST	O	9	H	H	H
REC	O	14	L	H	H
FLE	O	15	L	H	H
T-FG	I	25			
BAT DWN	I	26	H	H	H
SIG/ATF • T.END	I/O	27	H	H	H
TP DET	I	28	H	*1	*1
CAP ON	O	29	L	L	H
CIN SW	I	32	L	L	H
RF SWP	I	39			
CAP FG	I	40			
SEL1	O	7	*2	H	H
SEL2	O	8	*2	H	H
MSW3	I	33	L	L	L
MSW2	I	34	H	H	H
MSW1	I	35	H	H	H

*1 H/L pulse
*2 ATF control signal

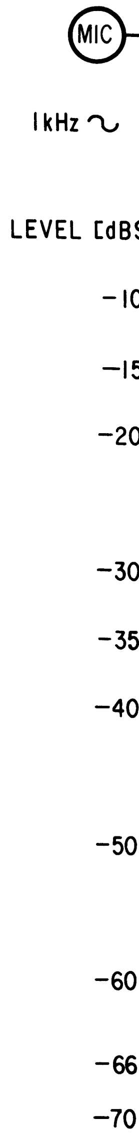
3-8. FUNCTION DESCRIPTION OF IC101 PIN (MD-10 BOARD)

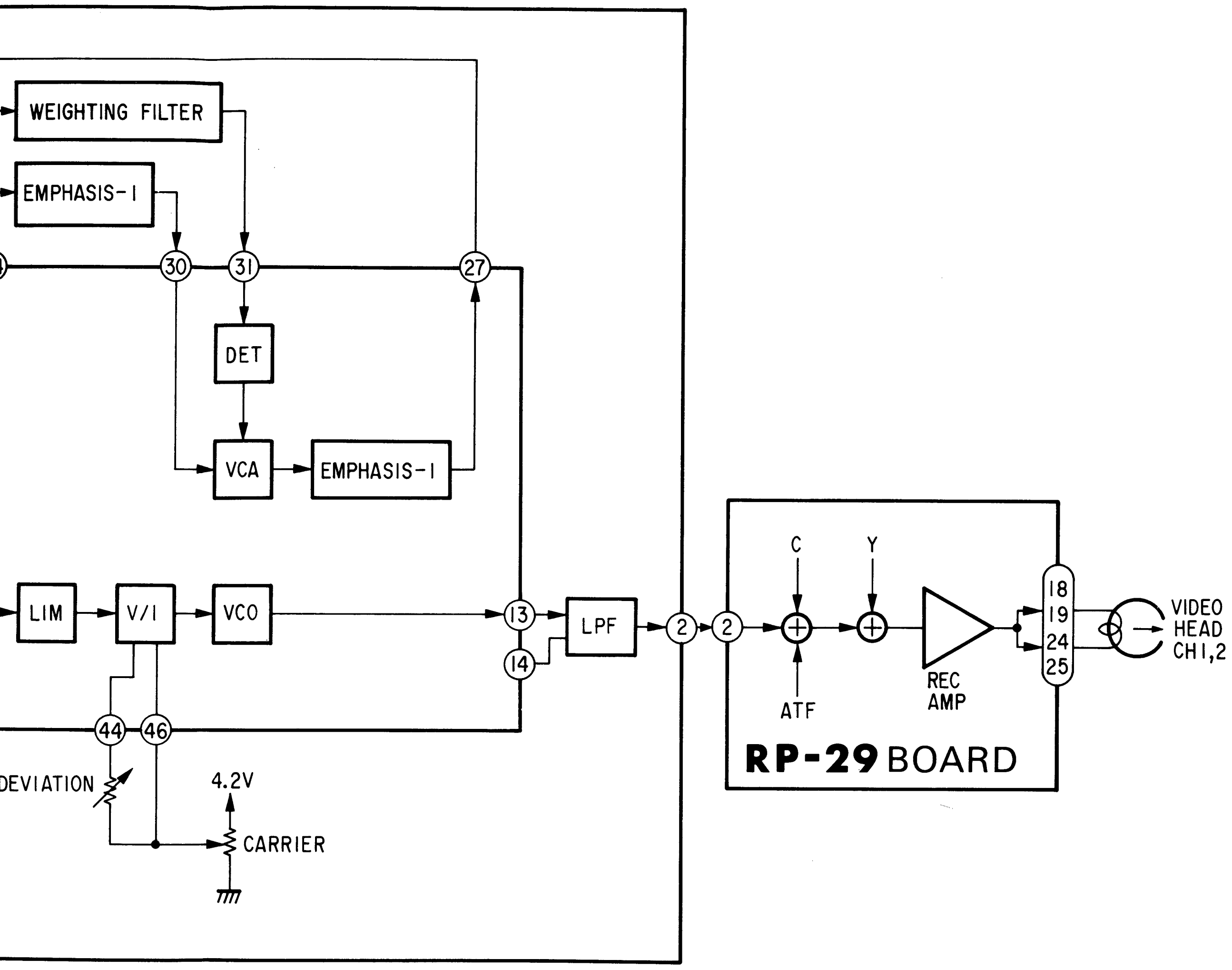
Pin no.	Pin name	I/O	I/O rotation mode	Function
1	REC LED	O	OPEN DRAIN	Light REC LED.
2	DEW LED	O	OPEN DRAIN	Light DEW LED.
3	END S LED	O	OPEN DRAIN	Light LED for TAPE END detection.
4	CAP FST	O	OPEN DRAIN	Perform high speed rotation of CAP motor during EJECT mode, etc.
5	CAP CCW/CW	O	OPEN DRAIN	Convert the rotating direction of CAP motor.
6	POWER	O	OPEN DRAIN	Turn the power supply ON/OFF.
7	SEL1	O	OPEN DRAIN	Controls the ATF servo pilot signal during recording mode of operation.
8	SEL2	O	OPEN DRAIN	Controls the ATF servo pilot signal during recording mode of operation.
9	SRVO RST	O	OPEN DRAIN	When power supply is ON and when the DRUM and CAPSTAN are turned ON, reset the internal counter of CX20035.
10	CS	O	OPEN DRAIN	A chip select signal for communication with CX20035.
11			OPEN DRAIN	Unused
12	LOAD	O	OPEN DRAIN	Output which renders performing of loading.
13	UNLOAD	O	OPEN DRAIN	Output which renders performing of unloading.
14	REC	O	OPEN DRAIN	Operates recording amplifier.
15	FLE	O	OPEN DRAIN	Operates FLYING ERASE circuit.
16	START	I	300kΩ PULL DOWN	A trigger input to start the IC.
17				Unused
18	+5V			+5V power supply pin
19				Unused
20	CCD SW	I	OPEN DRAIN	Detects that the cassette compartment is DOWN.
21	REC SW	I	OPEN DRAIN	Input of REC SW. Switching of REC mode and STBY mode can be performed with this input.
22	STBY SW	I	OPEN DRAIN	Input of STBY SW. Switching of input from READY mode to STBY mode is performed with this input.
23	EJECT SW	I	OPEN DRAIN	Input of EJECT SW.
24	DEW	I	OPEN DRAIN	Drum dew condensation input.
25	T-FG	I	OPEN DRAIN	FG of the reel stand on the T side is input.
26	BAT DWN	I	OPEN DRAIN	When the power supply voltage decreases, it becomes "L".
27	SIG/ATF • T.END	I/O	OPEN DRAIN	Switches signal necessary during continuous photographing (0). Performs TAPE END detection in REC mode (1).
28	TP DET	I	OPEN DRAIN	Input for conducting timing of continuous photographing.
29	CAP ON	O	OPEN DRAIN	Performs ON/OFF of CAPSTAN.
30				
31	SP/LP	I	OPEN DRAIN	When set at PAL, tape speed can be converted with this input.
32	CIN SW	I	300kΩ PULL UP	This switch detects the recording preventive claw and the AND of LENS DOOR SW, and has a recording preventive function.
33	MSW3	I	300kΩ PULL UP	Inputs with code the position of the mechanism operated by the loading motor.
34	MSW2	I	300kΩ PULL UP	Inputs with code the position of the mechanism operated by the loading motor.
35	MSW1	I	300kΩ PULL UP	Inputs with code the position of the mechanism operated by the loading motor.
36	X'tal IN	I		Clock oscillation element connecting pin.
37	X'tal OUT	O		Clock oscillation element connecting pin.
38	RESET	I	300kΩ PULL UP	A trigger input of the reset circuit of IC.
39	RF SWP	I	300kΩ PULL UP	An RF SWITCHING PULSE input.
40	CAP FG	I	300kΩ PULL UP	A CAPSTAN FG input. It controls the amount of feedback of the tape by the number of FG for continuous photographing.
41				Unused
42	GND			Ground pin
43				Unused
44	CLK	O	10kΩ PULL UP	A clock to be used when transferring serial data to CX20035.
45	DET DAT	I	300kΩ PULL UP	Receives state of the DRUM with serial data from CX20035.
46	CTL DAT	O	10kΩ PULL UP	Sends data which determines the state of the DRUM and CAPSTAN to CX20035.
47	CLOG LED	O	OPEN DRAIN	Light CAUTION LED.
48	STBY LED	O	OPEN DRAIN	Light STBY LED.

3-9. AUDIO BLOCK DIAGRAM

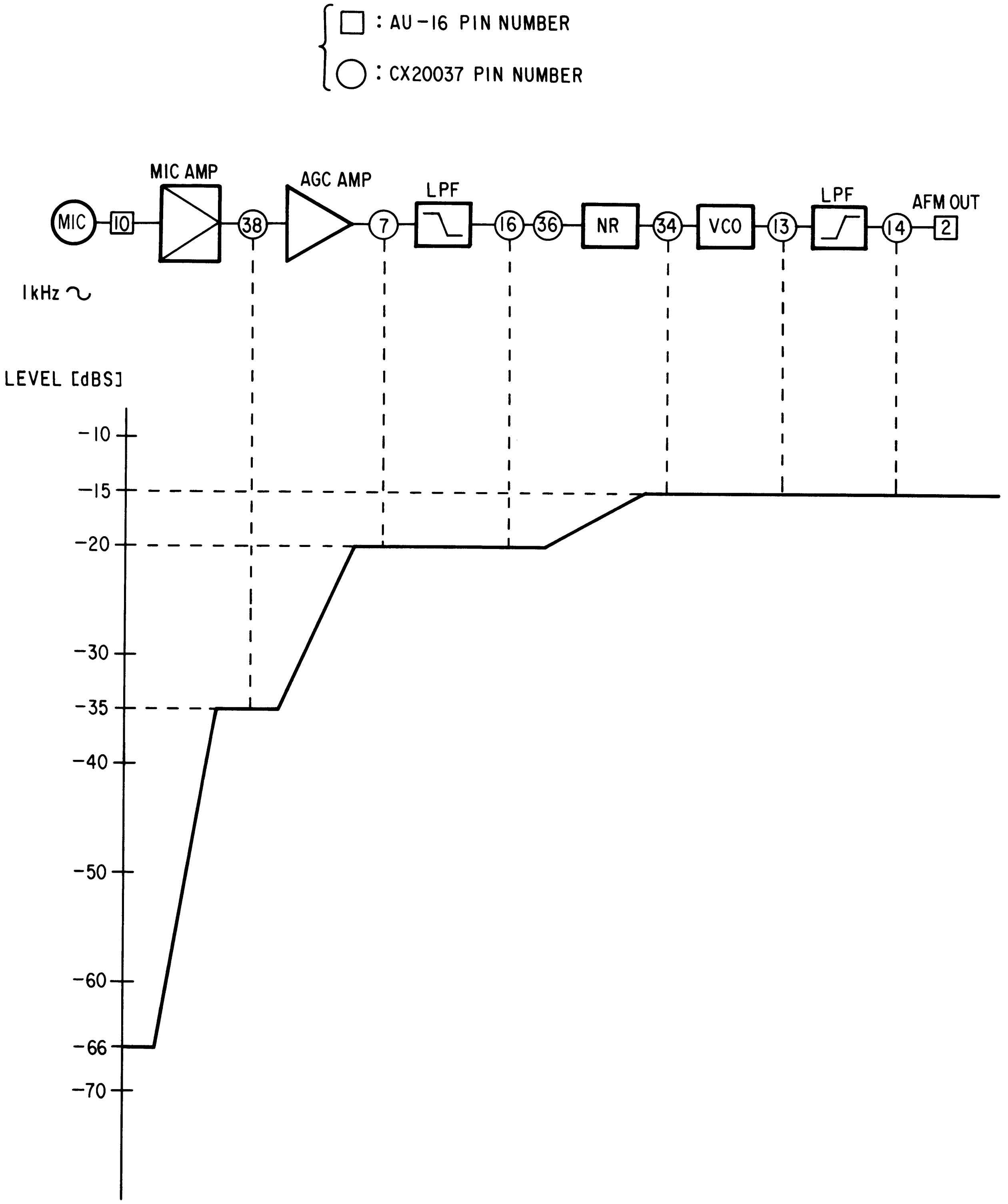

MIC
10
MIC AMP
38
VCA
DET
7
LPF-1
8
LPF-2
16
36
35
34
MOA
WEIGHTING FILTER
EMPHASIS-1
30
31
DET
VCA
EMPHASIS-1
27
IC401
LIM
V/I
VCO
13
14
LPF
44
46
DEVIATION
4.2V
CARRIER
AU-16 BOARD
2
2
C
Y
ATF
REC AMP
18
19
24
25
VIDEO HEAD CH1,2
RP-29 BOARD

3-10. AUDI

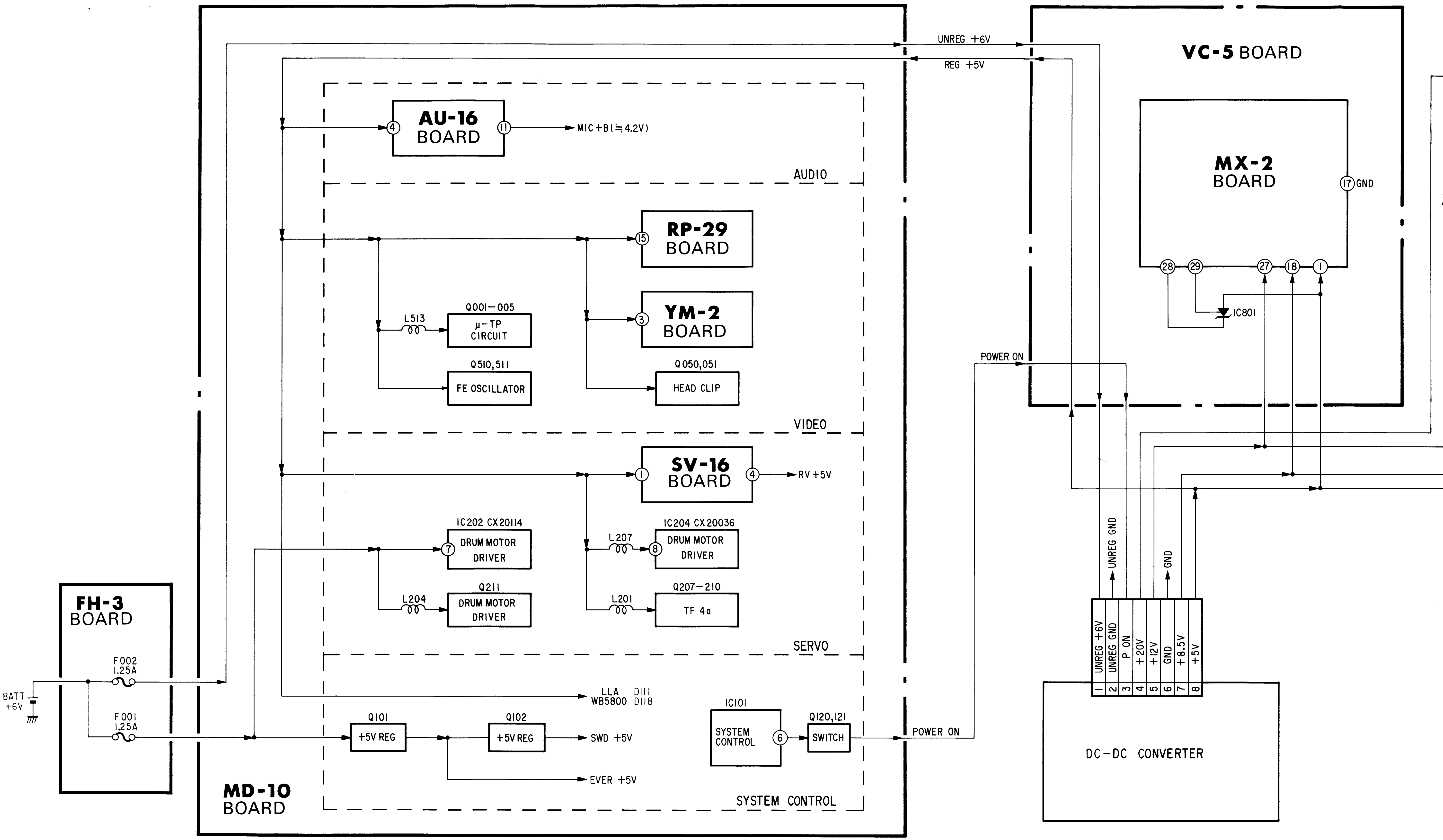

MIC
1kHz
LEVEL [dBS
-10
-15
-20
-30
-35
-40
-50
-60
-66
-70


WEIGHTING FILTER
EMPHASIS-I
30
31
27
DET
VCA
EMPHASIS-I
LIM
V/I
VCO
13
14
LPF
2
2
C
Y
ATF
REC AMP
18
19
24
25
VIDEO HEAD CH1,2
44
46
DEVIATION
4.2V
CARRIER
RP-29 BOARD

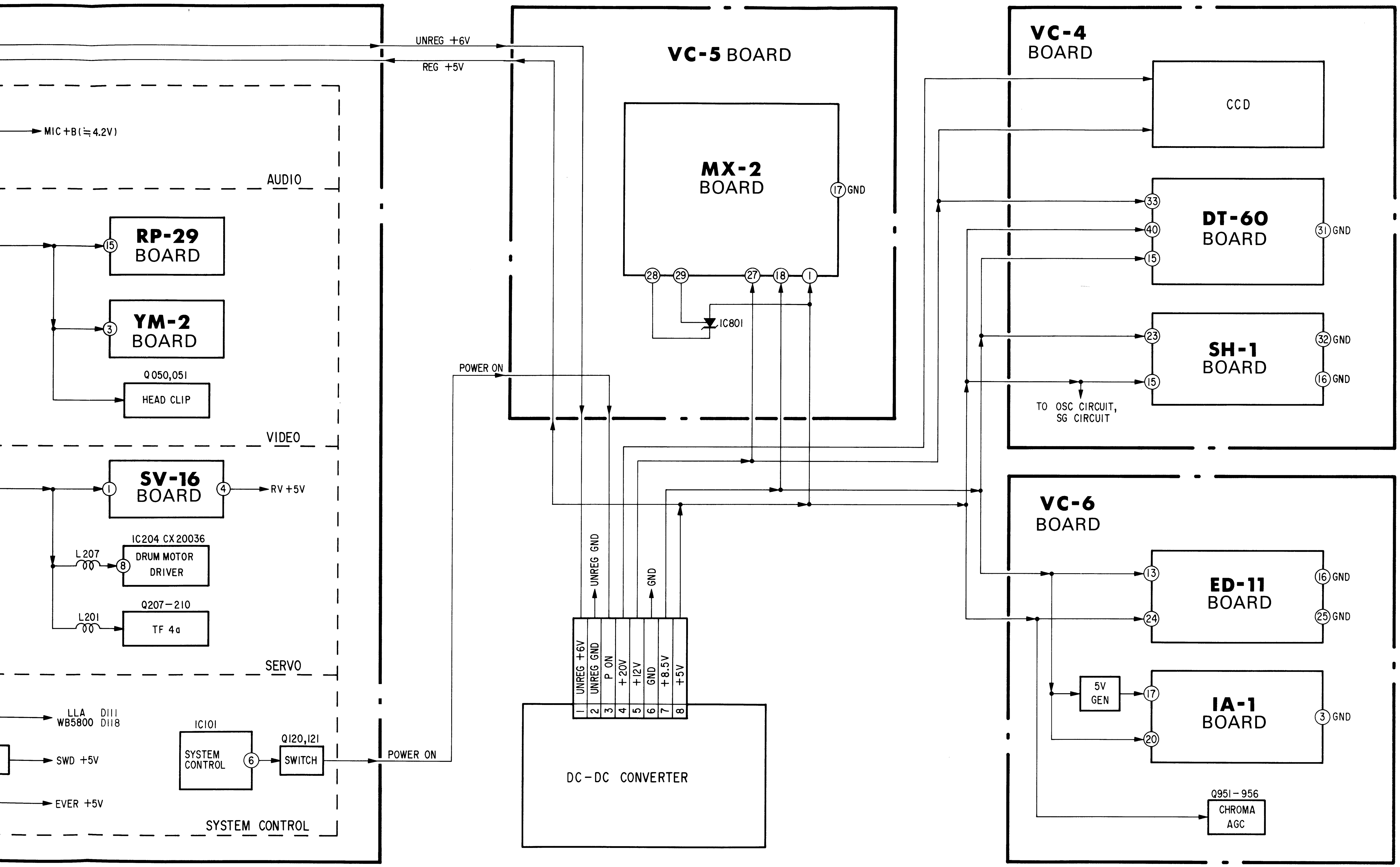
3-10. AUDIO LEVEL DIAGRAM



3-11. POWER BLOCK DIAGRAM



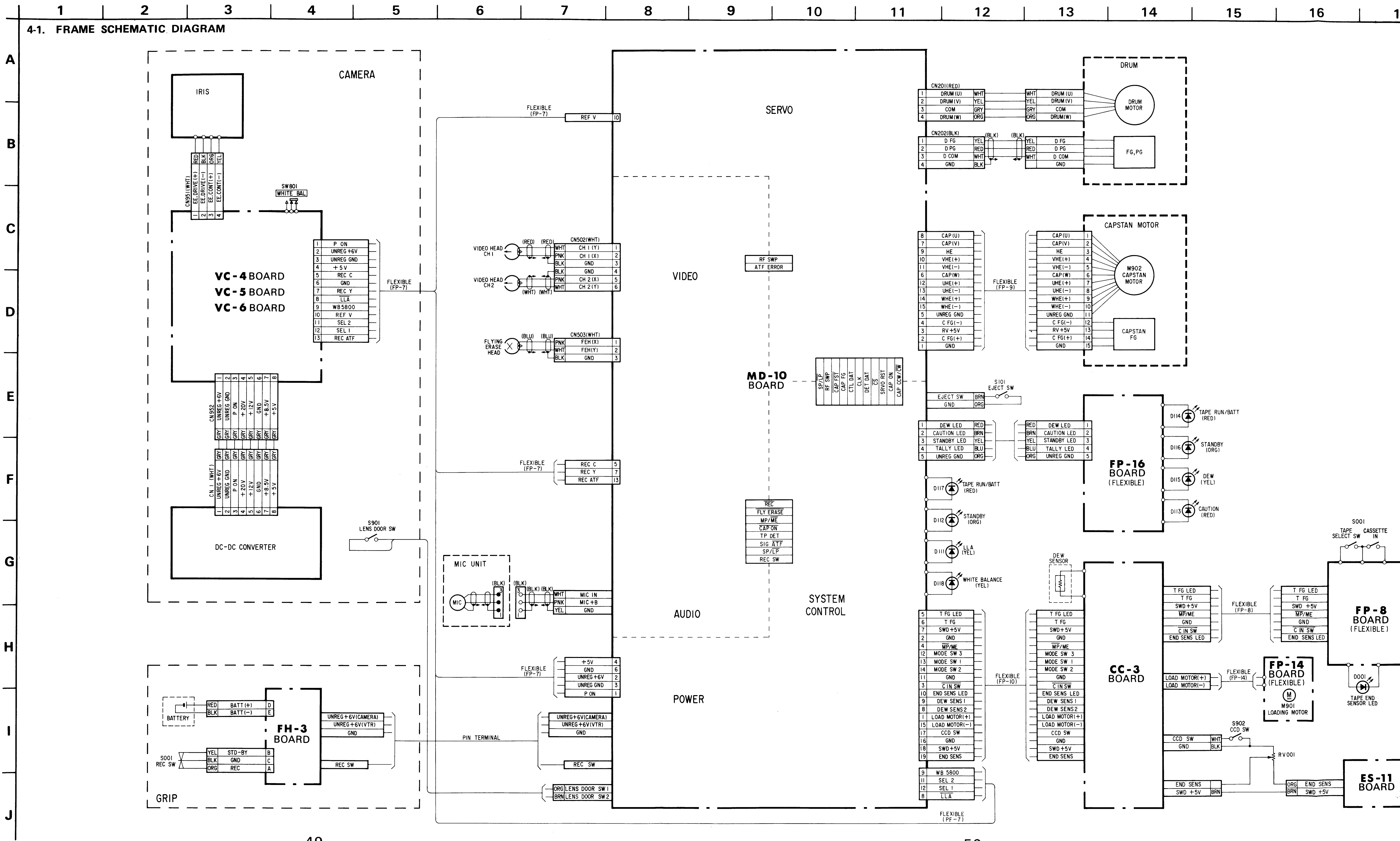
UNREG +6V
REG +5V
VC-5 BOARD
MX-2 BOARD
⑰ GND
㉘ ㉙ ㉗ ⑱ ①
IC801
POWER ON
AU-16 BOARD
④ ⑪
MIC +B(≒4.2V)
AUDIO
RP-29 BOARD
⑮
YM-2 BOARD
③
L513
Q001–005
μ-TP CIRCUIT
Q510,511
FE OSCILLATOR
Q050,051
HEAD CLIP
VIDEO
SV-16 BOARD
① ④
RV +5V
IC202 CX20114
⑦ DRUM MOTOR DRIVER
IC204 CX20036
L207
⑧ DRUM MOTOR DRIVER
Q211
L204
DRUM MOTOR DRIVER
Q207–210
L201
TF 4a
SERVO
FH-3 BOARD
F002 1.25A
F001 1.25A
BATT +6V
LLA D111
WB5800 D118
IC101
SYSTEM CONTROL ⑥
Q120,121
SWITCH
Q101
+5V REG
Q102
+5V REG
SWD +5V
EVER +5V
POWER ON
SYSTEM CONTROL
MD-10 BOARD
UNREG GND
GND
1 UNREG +6V
2 UNREG GND
3 P ON
4 +20V
5 +12V
6 GND
7 +8.5V
8 +5V
DC-DC CONVERTER

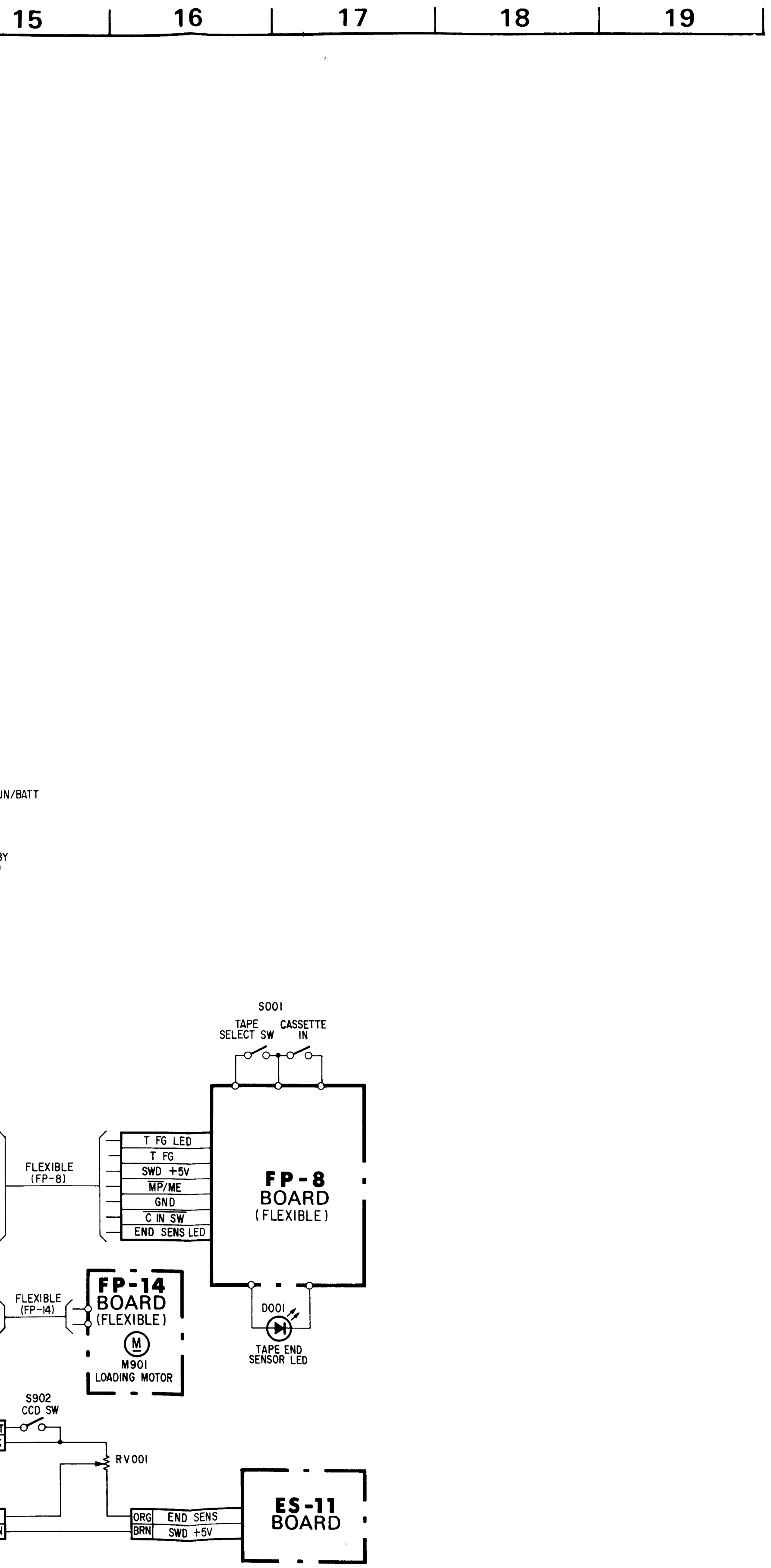

UNREG +6V
REG +5V
MIC +B(≒4.2V)
AUDIO
RP-29 BOARD
⑮
YM-2 BOARD
③
Q050,051
HEAD CLIP
VIDEO
SV-16 BOARD
①
④
RV +5V
IC204 CX20036
DRUM MOTOR DRIVER
L207
⑧
Q207−210
L201
TF 4a
SERVO
LLA D111
WB5800 D118
SWD +5V
EVER +5V
IC101
SYSTEM CONTROL
⑥
Q120,121
SWITCH
POWER ON
SYSTEM CONTROL
VC-5 BOARD
MX-2 BOARD
⑰ GND
(28)
(29)
(27)
⑱
①
IC801
POWER ON
UNREG GND
GND
UNREG +6V
UNREG GND
P ON
+20V
+12V
GND
+8.5V
+5V
1
2
3
4
5
6
7
8
DC−DC CONVERTER
VC-4 BOARD
CCD
DT-60 BOARD
(33)
(40)
⑮
(31) GND
SH-1 BOARD
(23)
⑮
(32) GND
⑯ GND
TO OSC CIRCUIT,
SG CIRCUIT
VC-6 BOARD
ED-11 BOARD
⑬
(24)
⑯ GND
(25) GND
5V GEN
IA-1 BOARD
⑰
⑳
③ GND
Q951−956
CHROMA AGC

SECTION 4

SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

4-1. FRAME SCHEMATIC DIAGRAM


CAMERA
IRIS
CN951(WHT)
EE.DRIVE(+)
EE.DRIVE(−)
EE.CONT(+)
EE.CONT(−)
SW801
WHITE BAL
VC-4 BOARD
VC-5 BOARD
VC-6 BOARD
P ON
UNREG +6V
UNREG GND
+5V
REC C
GND
REC Y
LLA
WB 5800
REF V
SEL 2
SEL 1
REC ATF
CN952
CN 1 (WHT)
+20V
+12V
+8.5V
DC-DC CONVERTER
S901
LENS DOOR SW
FLEXIBLE (FP-7)
VIDEO HEAD CH1
VIDEO HEAD CH2
CN502(WHT)
CH 1 (Y)
CH 1 (X)
CH 2 (X)
CH 2 (Y)
FLYING ERASE HEAD
CN503(WHT)
FEH(X)
FEH(Y)
MIC UNIT
MIC
MIC IN
MIC +B
SERVO
VIDEO
AUDIO
POWER
SYSTEM CONTROL
MD-10 BOARD
RF SWP
ATF ERROR
REC
FLY ERASE
MP/ME
CAP ON
TP DET
SIG ATF
SP/LP
REC SW
SP/LP
CAP FST
CAP FG
CTL DAT
CLK
DET DAT
CS
SRVO RST
CAP CCW/CW
GRIP
BATTERY
BATT(+)
BATT(−)
S001
REC SW
STD-BY
FH-3 BOARD
UNREG+6V(CAMERA)
UNREG+6V(VTR)
PIN TERMINAL
LENS DOOR SW1
LENS DOOR SW2
DRUM
CN201(RED)
DRUM (U)
DRUM (V)
COM
DRUM (W)
DRUM MOTOR
CN202(BLK)
D FG
D PG
D COM
FG,PG
CAPSTAN MOTOR
CAP(U)
CAP(V)
HE
VHE(+)
VHE(−)
CAP(W)
UHE(+)
UHE(−)
WHE(+)
WHE(−)
C FG(−)
RV+5V
C FG(+)
FLEXIBLE (FP-9)
M902 CAPSTAN MOTOR
CAPSTAN FG
S101
EJECT SW
DEW LED
CAUTION LED
STANDBY LED
TALLY LED
FP-16 BOARD (FLEXIBLE)
D114 TAPE RUN/BATT (RED)
D116 STANDBY (ORG)
D115 DEW (YEL)
D113 CAUTION (RED)
D117 TAPE RUN/BATT (RED)
D112 STANDBY (ORG)
D111 LLA (YEL)
D118 WHITE BALANCE (YEL)
DEW SENSOR
CC-3 BOARD
T FG LED
T FG
SWD+5V
MODE SW 3
MODE SW 1
MODE SW 2
C IN SW
END SENS LED
DEW SENS 1
DEW SENS 2
LOAD MOTOR(+)
LOAD MOTOR(−)
CCD SW
END SENS
FLEXIBLE (FP-10)
FLEXIBLE (FP-8)
FP-8 BOARD (FLEXIBLE)
S001
TAPE SELECT SW
CASSETTE IN
D001
TAPE END SENSOR LED
FLEXIBLE (FP-14)
FP-14 BOARD (FLEXIBLE)
M901 LOADING MOTOR
S902 CCD SW
RV001
ES-11 BOARD
FLEXIBLE (PF-7)


15
16
17
18
19
UN/BATT
BY
S001
TAPE SELECT SW
CASSETTE IN
FLEXIBLE (FP-8)
T FG LED
T FG
SWD +5V
MP/ME
GND
C IN SW
END SENS LED
FP-8 BOARD (FLEXIBLE)
D001
TAPE END SENSOR LED
FLEXIBLE (FP-14)
FP-14 BOARD (FLEXIBLE)
M
M901 LOADING MOTOR
S902 CCD SW
RV001
ORG END SENS
BRN SWD +5V
ES-11 BOARD

4-2. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARD

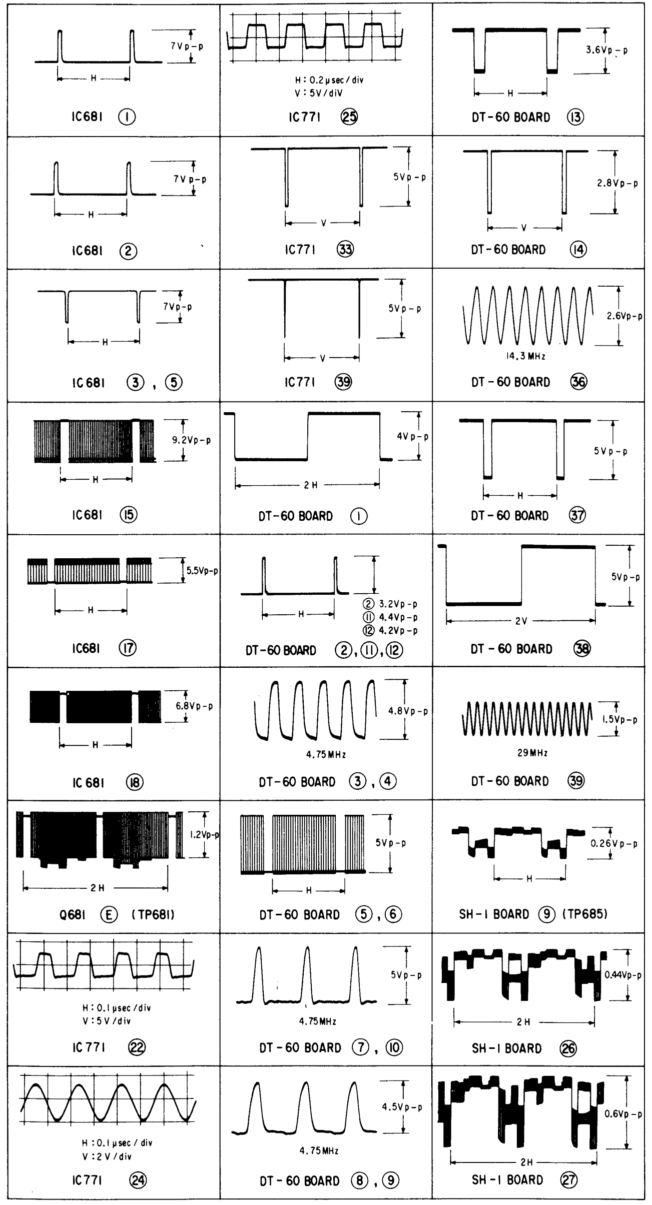
- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all μF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- ☐ : panel designation.
- ☐ : adjustment designation.
- ▬ : B+ line.

- Measuring conditions of voltage value and waveform
  (1) The subject is color bar of pattern box.
  (2) The voltage value is a reference value between the grounding.
  (The tester used is the digital multimeter DC10MΩ)
  (3) The voltage value are all in the recording mode of operation.

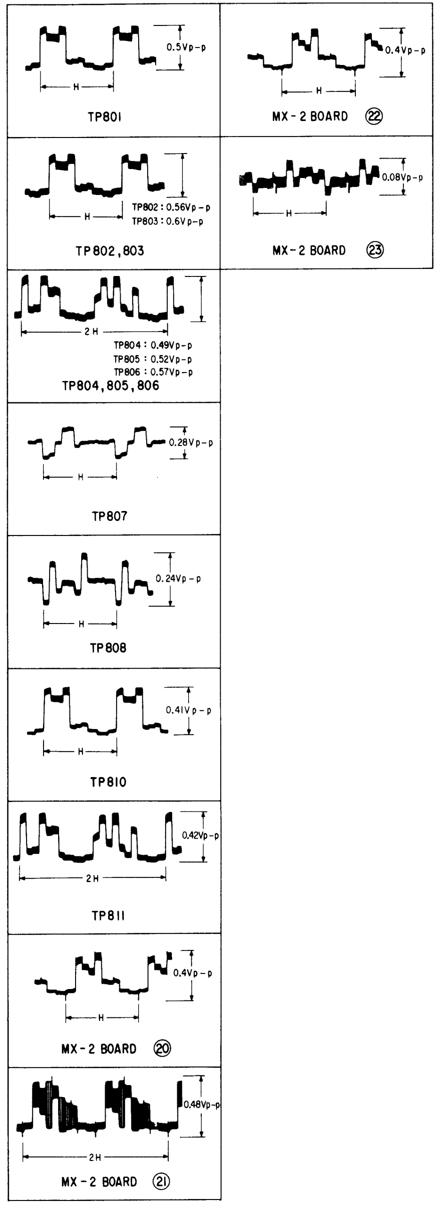
Signal path

⇨ : REC Y/C Signal
⇨ : REC Y Signal
➡ : REC C Signal

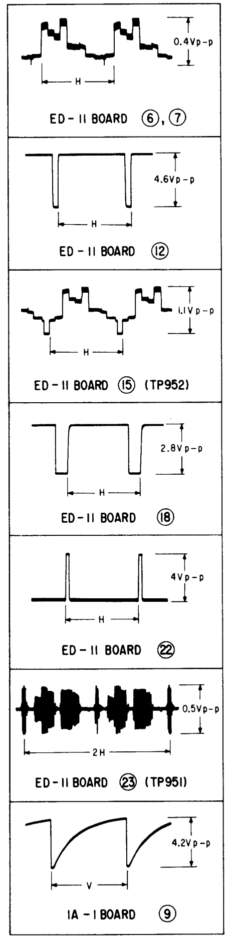
VC-4 BOARD



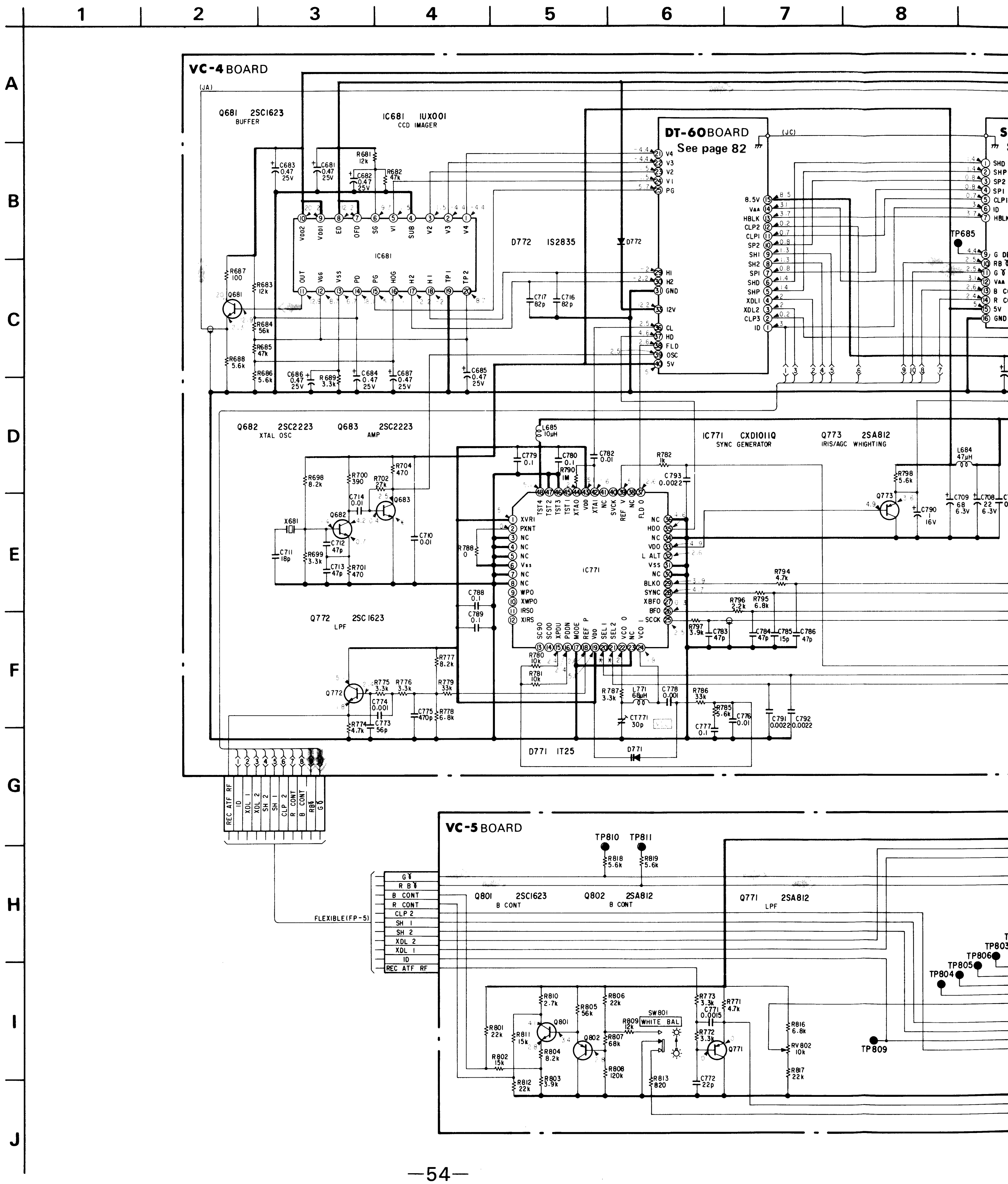
VC-5 BOARD

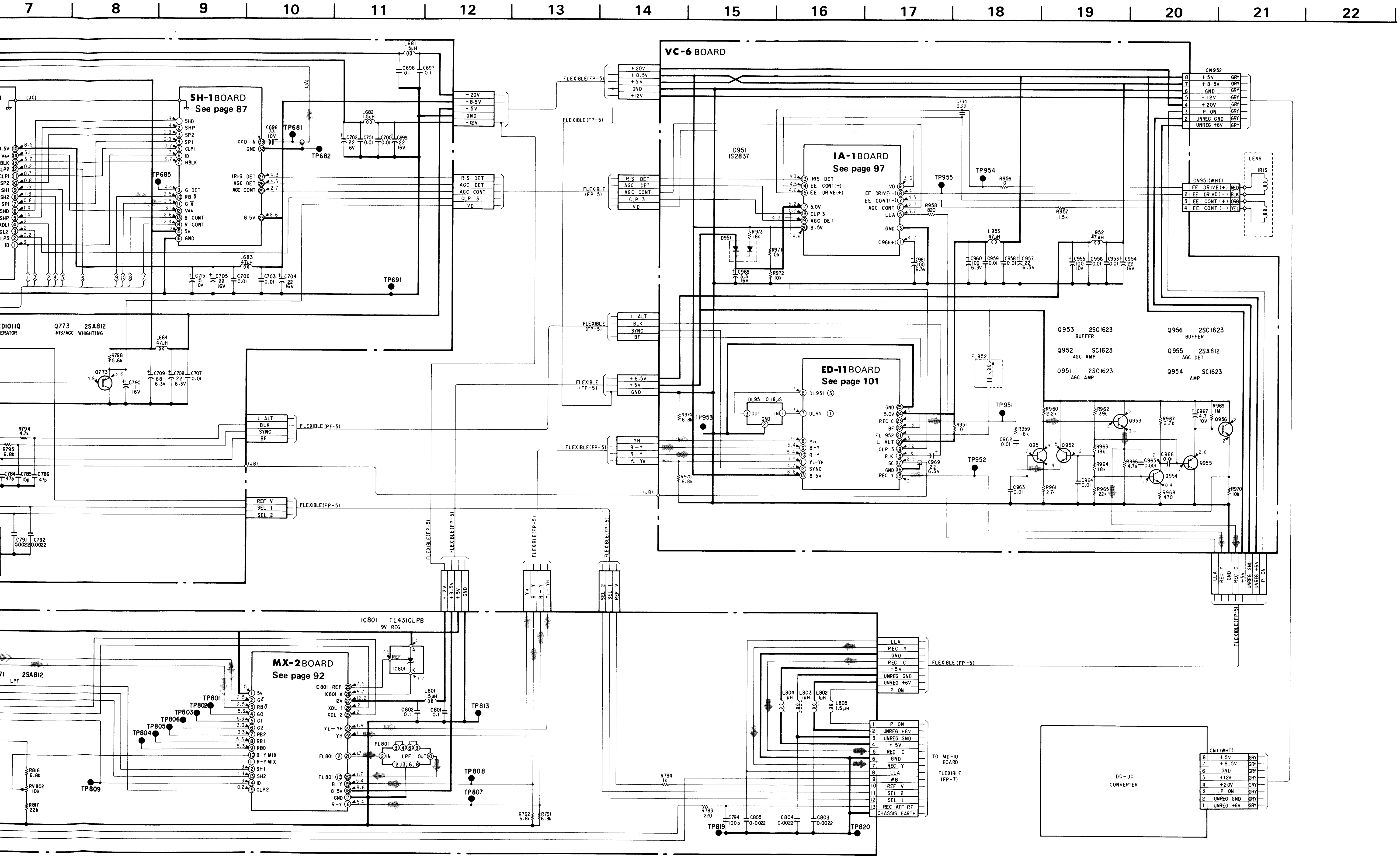


VC-6 BOARD



VC-4, 5, 6 (CAMERA) SCHEMATIC DIAGRAMS


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
VC-4 BOARD
Q681 2SC1623 BUFFER
IC681 IUX001 CCD IMAGER
DT-60 BOARD
See page 82
D772 1S2835
Q682 2SC2223 XTAL OSC
Q683 2SC2223 AMP
IC771 CXD1011Q SYNC GENERATOR
Q773 2SA812 IRIS/AGC WHIGHTING
Q772 2SC1623 LPF
D771 1T25
IC771
IC681
X681
TP685
REC ATF RF
ID
XDL 1
XDL 2
SH 2
SH 1
CLP 2
R CONT
B CONT
R B Y
G Y
FLEXIBLE (FP-5)
VC-5 BOARD
TP810
TP811
Q801 2SC1623 B CONT
Q802 2SA812 B CONT
Q771 2SA812 LPF
SW801 WHITE BAL
TP803
TP806
TP805
TP804
TP809


7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
VC-6 BOARD
SH-1 BOARD
See page 87
IA-1 BOARD
See page 97
ED-11 BOARD
See page 101
MX-2 BOARD
See page 92
IC801 TL431CLPB
9V REG
CN952
CN951 (WHT)
LENS
IRIS
EE DRIVE (+)
EE DRIVE (−)
EE CONT (+)
EE CONT (−)
D951
1S2837
Q953 2SC1623 BUFFER
Q952 SC1623 AGC AMP
Q951 2SC1623 AGC AMP
Q956 2SC1623 BUFFER
Q955 2SA812 AGC DET
Q954 SC1623 AMP
Q773 2SA812 IRIS/AGC WHIGHTING
DL951 0.18μS
FL801
LPF
FL952
TP681
TP682
TP685
TP691
TP951
TP952
TP953
TP954
TP955
TP801
TP802
TP803
TP804
TP805
TP806
TP807
TP808
TP809
TP813
TP819
TP820
FLEXIBLE (FP-5)
FLEXIBLE (PF-5)
FLEXIBLE (FP-7)
TO MD-10 BOARD
DC-DC CONVERTER
CN1 (WHT)
+20V
+8.5V
+5V
GND
+12V
IRIS DET
AGC DET
AGC CONT
CLP 3
VD
L ALT
BLK
SYNC
BF
YH
B−Y
R−Y
YL−YH
REF V
SEL 1
SEL 2
LLA
REC Y
REC C
UNREG GND
UNREG +6V
P ON
WB
REC ATF RF
CHASSIS EARTH
(JC)
(JA)
(JB)

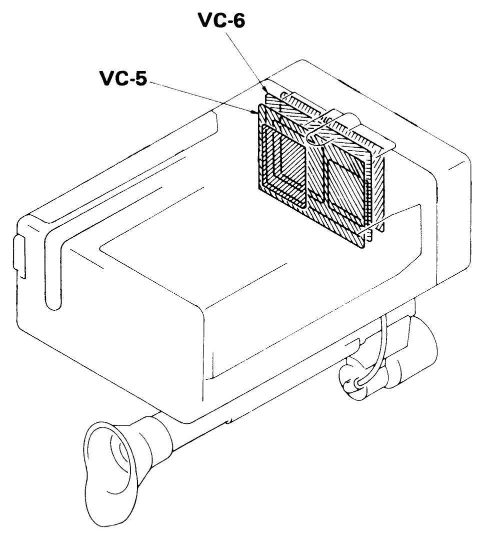
- ⊗ : mark is slew hole.
- ○— : lead wire attached to the component side.
- ●— : lead wire attached to the pattern side.
- ▨ : pattern from the side which enables seeing.
- ░ : pattern of the rear side.
- ░ : B+ pattern.
- The voltage value is all recording mode of operation.

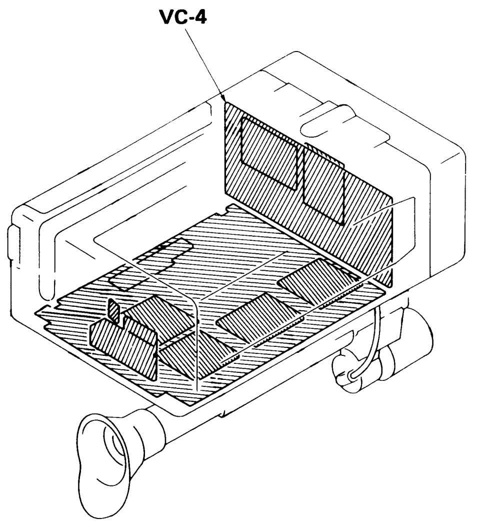
Note

Soldering side:	Parts on the soldering side being seen from the soldering are stated.
Component side:	Parts on the component side being seen from the component are stated.

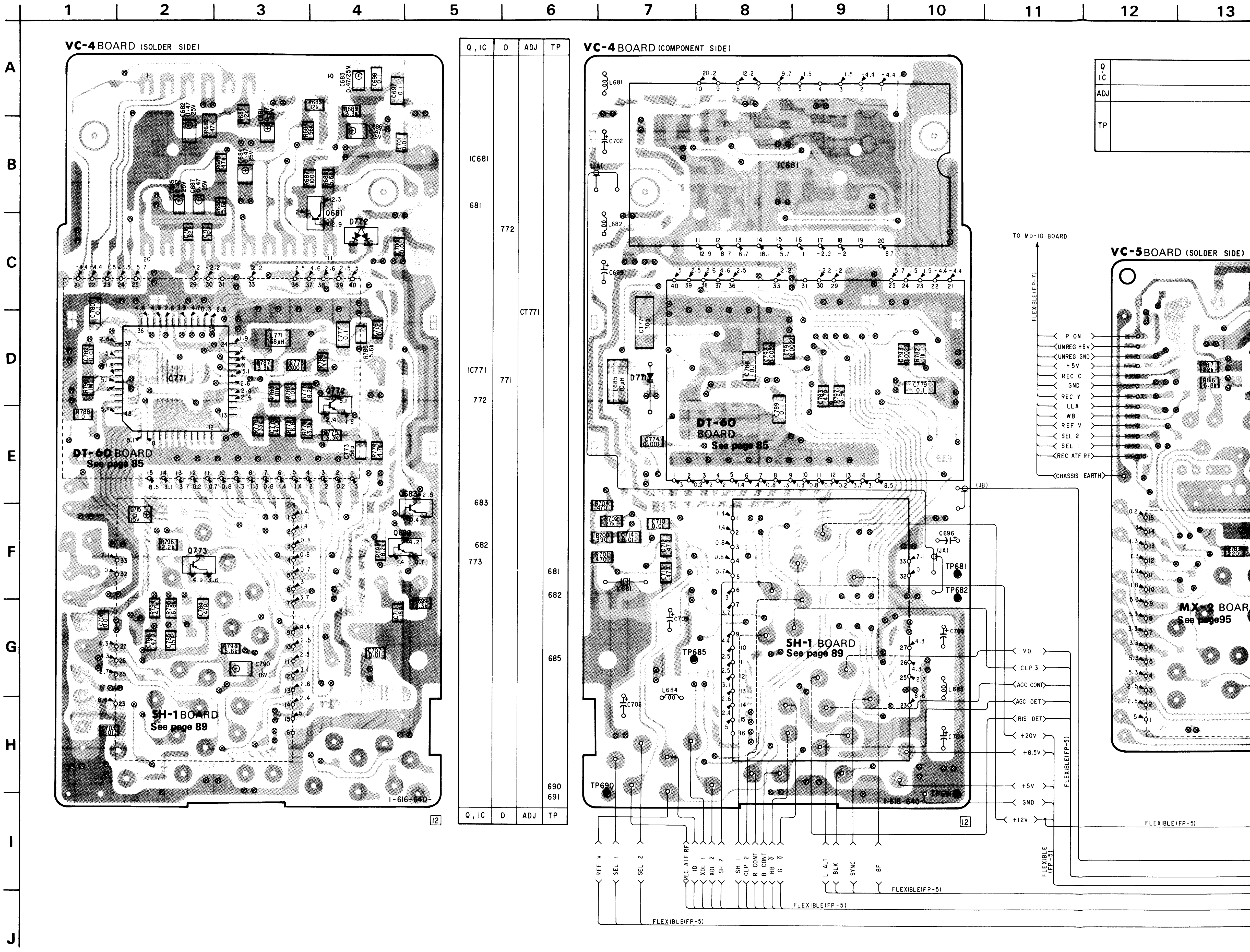
Regarding color indication of patterns

- * Patterns being seen in the state from the surface side are indicated in gray pattern and red pattern (B+ pattern).
- * Pattern being seen in the state of the rear surface side is indicated in green pattern.





VC-4, 5, 6 (CAMERA) PRINTED WIRING BOARDS


1
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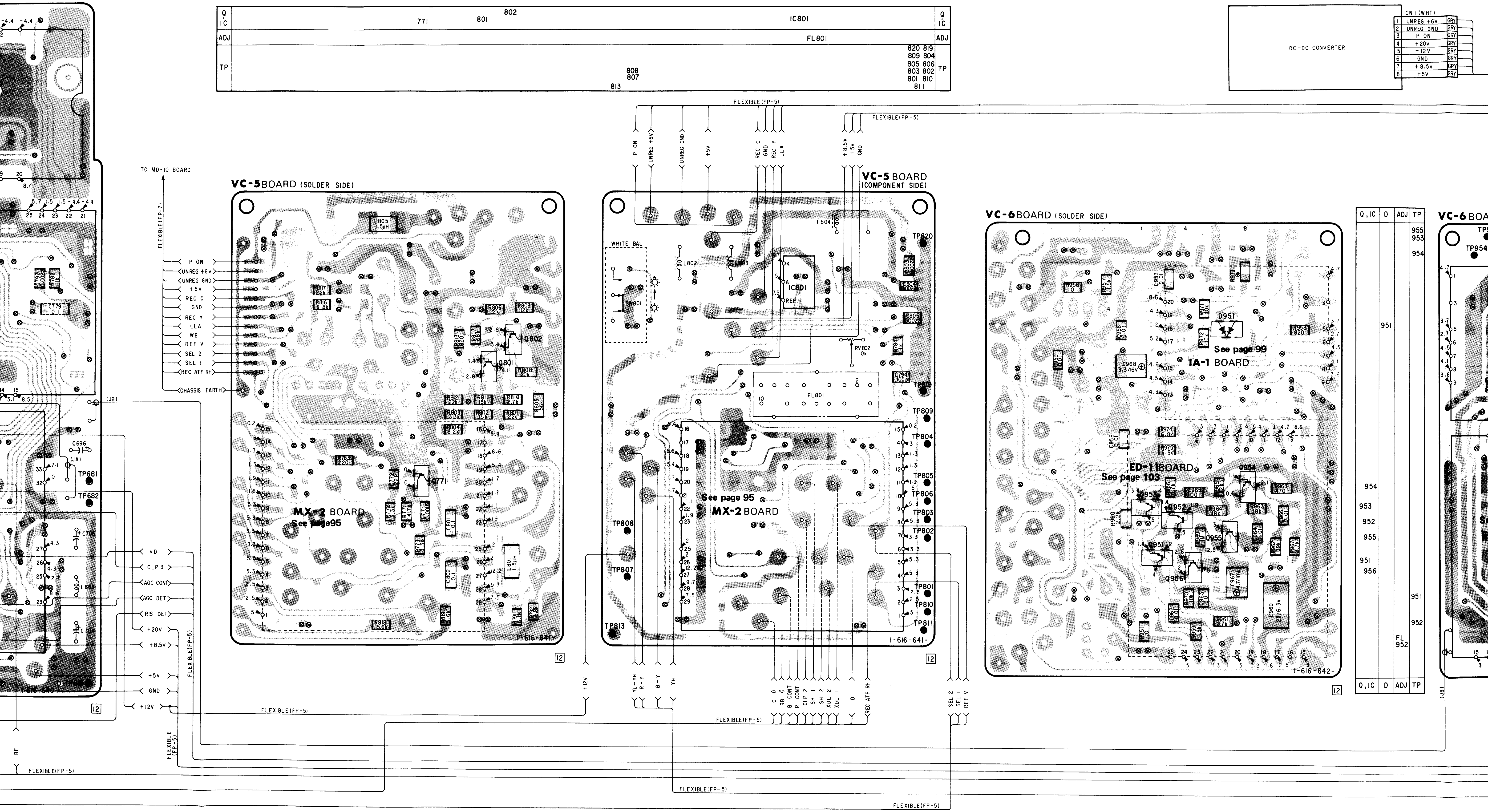
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
J
VC-4 BOARD (SOLDER SIDE)
IC681
Q681
D772
IC771
Q772
DT-60 BOARD
See page 85
Q773
SH-1 BOARD
See page 89
Q683
Q682
1-616-640-
Q, IC
D
ADJ
TP
IC681
681
772
CT771
IC771
771
772
683
682
773
681
682
685
690
691
VC-4 BOARD (COMPONENT SIDE)
IC681
D771
DT-60
BOARD
See page 85
TP681
TP682
SH-1 BOARD
See page 89
TP685
TP690
TP691
1-616-640-
TO MD-10 BOARD
FLEXIBLE (FP-7)
P ON
UNREG +6V
UNREG GND
+5V
REC C
GND
REC Y
LLA
WB
REF V
SEL 2
SEL 1
REC ATF RF
CHASSIS EARTH
(JB)
(JA)
VD
CLP 3
AGC CONT
AGC DET
IRIS DET
+20V
+8.5V
+5V
GND
+12V
FLEXIBLE (FP-5)
REF V
SEL 1
SEL 2
REC ATF RF
ID
XDL 1
XDL 2
SH 2
SH 1
CLP 2
R CONT
B CONT
RB
G
L ALT
BLK
SYNC
BF
FLEXIBLE (FP-5)
VC-5 BOARD (SOLDER SIDE)
MX-2 BOAR
See page 95
Q
IC
ADJ
TP

	12	13	14	15	16	17	18	19	20	
Q IC			771	801 802			IC801			Q IC
ADJ							FL801			ADJ
TP					808 807 813				820 819 809 804 805 806 803 802 801 810 811	TP

DC-DC CONVERTER

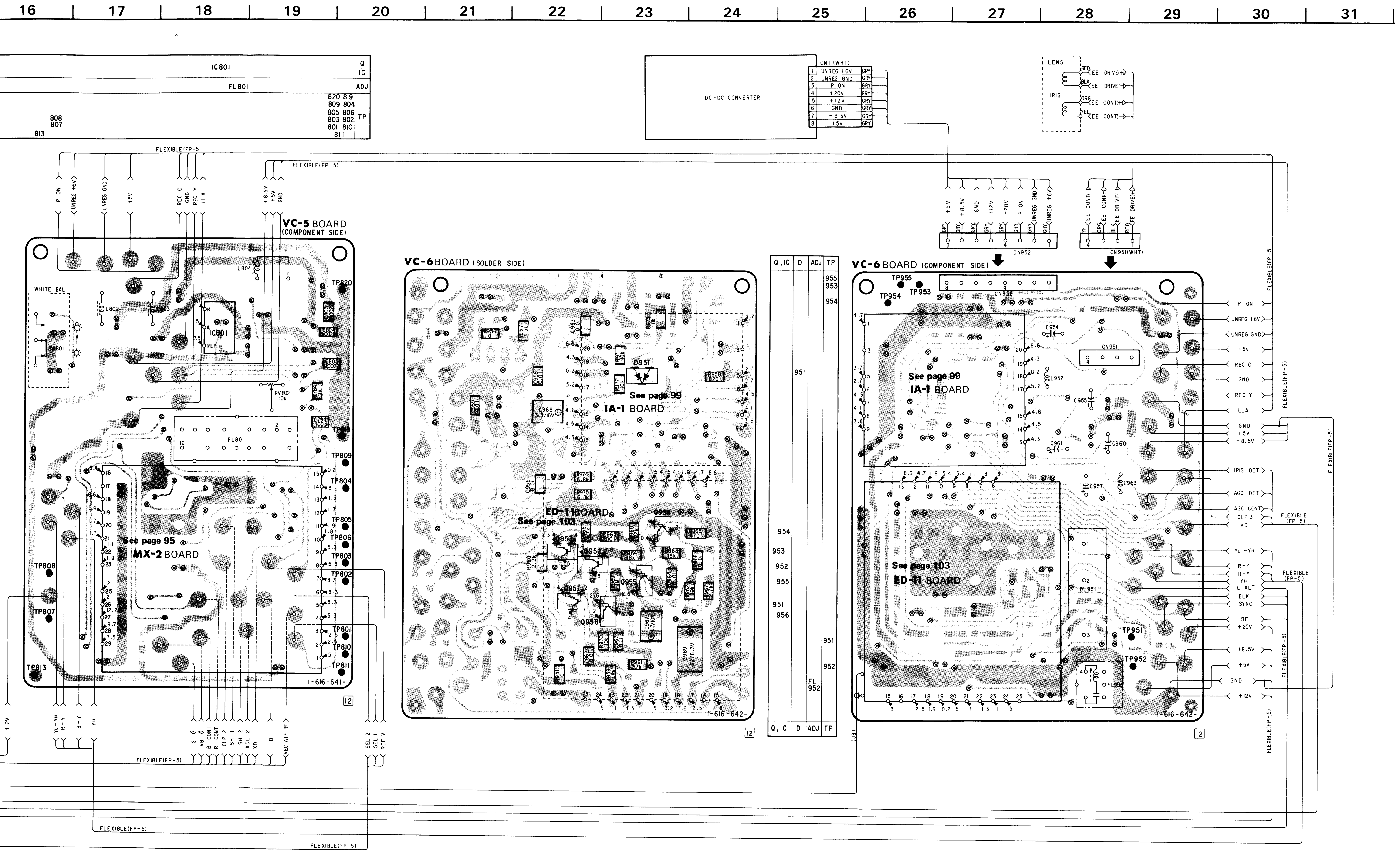
CN1 (WHT)

1	UNREG +6V	GRY
2	UNREG GND	GRY
3	P ON	GRY
4	+20V	GRY
5	+12V	GRY
6	GND	GRY
7	+8.5V	GRY
8	+5V	GRY

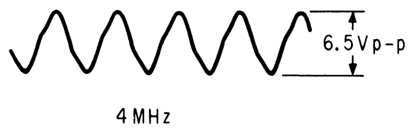


TO MD-10 BOARD
FLEXIBLE(FP-7)
VC-5 BOARD (SOLDER SIDE)
P ON
UNREG +6V
UNREG GND
+5V
REC C
GND
REC Y
LLA
WB
REF V
SEL 2
SEL 1
REC ATF RF
CHASSIS EARTH
L805 1.5µH
Q802
Q801
Q771
MX-2 BOARD
See page95
L801 1.5µH
1-616-641-
VD
CLP 3
AGC CONT
AGC DET
IRIS DET
+20V
+8.5V
+5V
GND
+12V
FLEXIBLE(FP-5)
(JB)
(JA)
TP681
TP682
TP696
1-616-640
BF
FLEXIBLE(FP-5)
P ON
UNREG +6V
UNREG GND
+5V
REC C
GND
REC Y
LLA
+8.5V
+5V
GND
VC-5 BOARD (COMPONENT SIDE)
WHITE BAL
SW801
L802
L803
L804
IC801
RV802 10k
FL801
TP820
TP819
TP809
TP804
TP805
TP806
TP803
TP802
TP801
TP810
TP811
TP808
TP807
TP813
See page 95
MX-2 BOARD
1-616-641-
+12V
YL-YH
R-Y
B-Y
YH
G
RB
B CONT
R CONT
CLP 2
SH 1
SH 2
XDL 2
XDL 1
IO
REC ATF RF
SEL 2
SEL 1
REF V
FLEXIBLE(FP-5)
VC-6 BOARD (SOLDER SIDE)
D951
See page 99
IA-1 BOARD
C968 3.3/16V
ED-11 BOARD
See page 103
Q953
Q952
Q954
Q955
Q951
Q956
C967 47/10V
C969 22/6.3V
1-616-642-
VC-6 BOA
TP954
(JB)

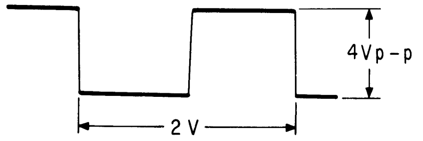
Q,IC	D	ADJ	TP
			955 953
			954
	951		
954			
953			
952			
955			
951			
956			
			951
			952
		FL 952	
Q,IC	D	ADJ	TP


16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
IC801
FL801
Q IC
ADJ
TP
DC-DC CONVERTER
CN1 (WHT)
UNREG +6V
UNREG GND
P ON
+20V
+12V
GND
+8.5V
+5V
GRY
LENS
IRIS
EE DRIVE(+)
EE DRIVE(-)
EE CONT(+)
EE CONT(-)
RED
BLK
ORG
YEL
FLEXIBLE(FP-5)
VC-5 BOARD (COMPONENT SIDE)
WHITE BAL
S801
L802
L803
L804
IC801
RV802 10k
FL801
TP820
TP819
TP809
TP804
TP805
TP806
TP803
TP802
TP801
TP810
TP811
TP808
TP807
TP813
See page 95
MX-2 BOARD
1-616-641-
12
+12V
YL-YH
R-Y
B-Y
YH
G
RB
B CONT
R CONT
CLP 2
SH 1
SH 2
XDL 2
XDL 1
ID
REC ATF FR
SEL 2
SEL 1
REF V
VC-6 BOARD (SOLDER SIDE)
See page 99
IA-1 BOARD
D951
ED-11 BOARD
See page 103
Q951
Q952
Q954
Q955
Q956
C968 3.3/16V
C967 47/10V
C969 22/6.3V
1-616-642-
Q,IC
D
ADJ
TP
955
953
954
951
952
956
FL 952
VC-6 BOARD (COMPONENT SIDE)
TP955
TP953
TP954
CN952
CN951
CN951(WHT)
C954
C955
C960
C961
L952
L953
C957
DL951
TP951
TP952
FL952
P ON
UNREG +6V
UNREG GND
+5V
REC C
GND
REC Y
LLA
+8.5V
IRIS DET
AGC DET
AGC CONT
CLP 3
VD
YL-YH
R-Y
B-Y
YH
L ALT
BLK
SYNC
BF
+20V
+12V
(JB)

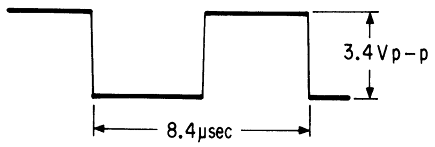
MD-10 BOARD (SYSCON,SERVO)



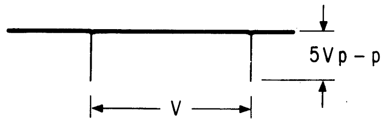
IC101 ㊱



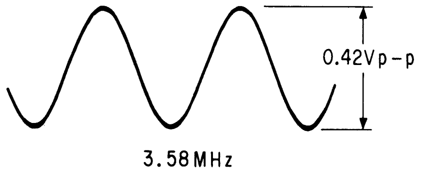
IC101 ㊴



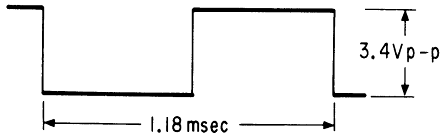
SV-16 BOARD ②



SV-16 BOARD ⑦

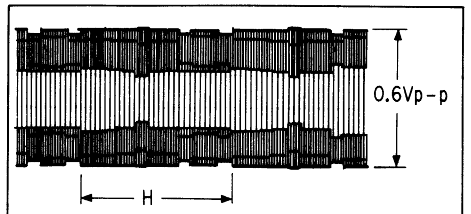


SV-16 BOARD ⑫

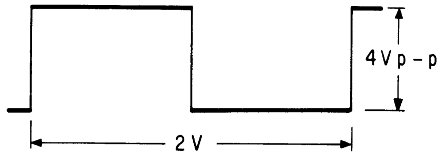


SV-16 BOARD ㉑

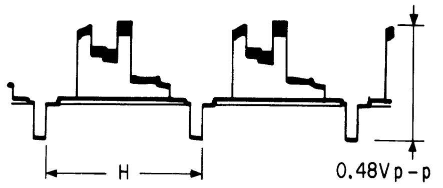
MD-10 BOARD (VIDEO, AUDIO)



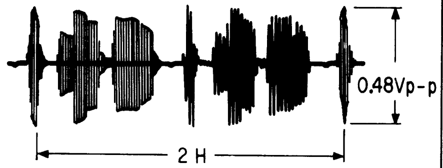
YM-2 BOARD ①



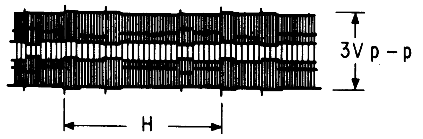
YM-2 BOARD ⑤



YM-2 BOARD ⑬, ⑮



RP-29 BOARD ③



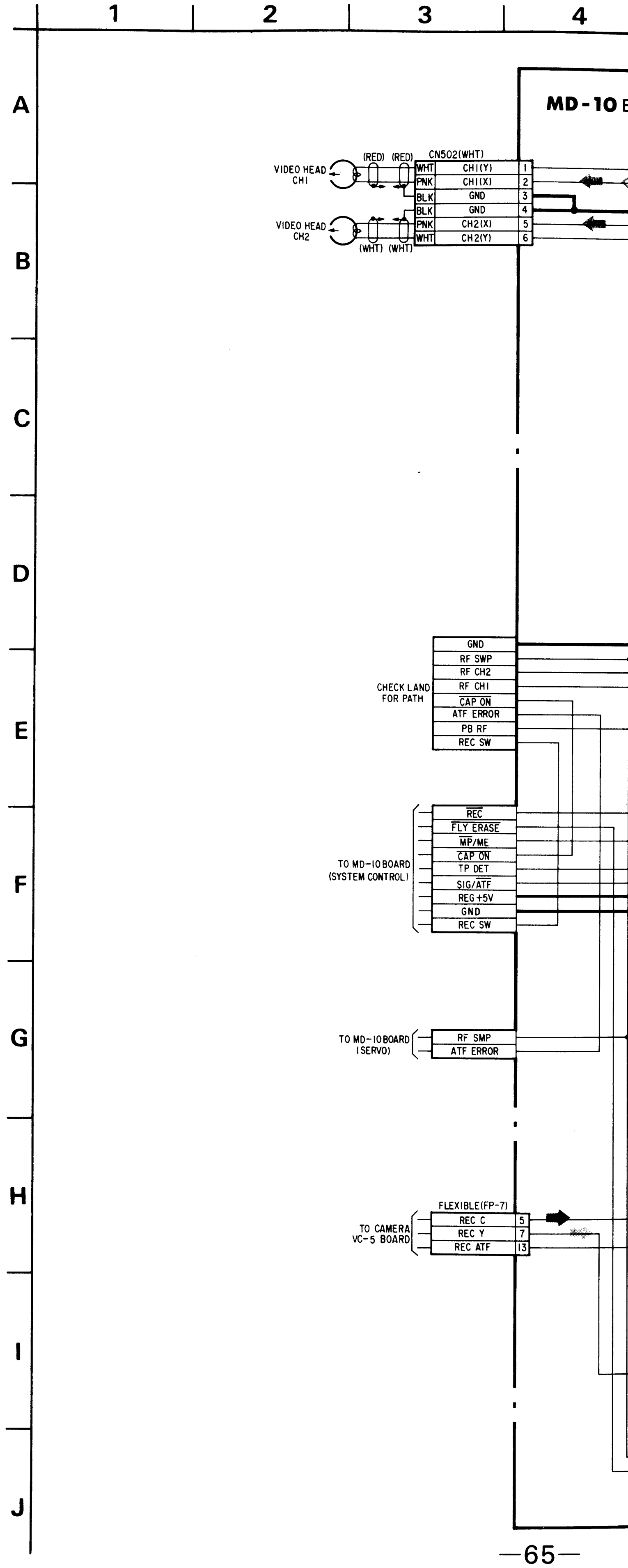
RP-29 BOARD ㉔, ⑲

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all μF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- ▭ : panel designation.
- ▭ : adjustment designation.
- ▬ : B+ line.
- Measuring conditions of voltage value and waveform
  (1) The subject is color bar of pattern box.
  (2) The voltage value is a reference value between the grounding.
  (The tester used is the digital multimeter DC10MΩ)
  (3) The voltage value are all in the recording mode of operation.

Signal path

➡ : REC Y Signal
➡ : **REC C Signal**
➡ : REC Y/C Signal
➡ [illegible]

MD-10 (VIDEO, AUDIO) SCHEMATIC DIAGRAM


1
2
3
4
A
B
C
D
E
F
G
H
I
J
MD-10 B
VIDEO HEAD CH1
VIDEO HEAD CH2
(RED) (RED)
(WHT) (WHT)
CN502(WHT)
WHT CH1(Y) 1
PNK CH1(X) 2
BLK GND 3
BLK GND 4
PNK CH2(X) 5
WHT CH2(Y) 6
CHECK LAND FOR PATH
GND
RF SWP
RF CH2
RF CH1
CAP ON
ATF ERROR
PB RF
REC SW
TO MD-10 BOARD (SYSTEM CONTROL)
REC
FLY ERASE
MP/ME
CAP ON
TP DET
SIG/ATF
REG +5V
GND
REC SW
TO MD-10 BOARD (SERVO)
RF SMP
ATF ERROR
TO CAMERA VC-5 BOARD
FLEXIBLE(FP-7)
REC C 5
REC Y 7
REC ATF 13

n replacing chip components
components but use new

e negative side of the tantalum
t.
e pressure 50V or less are not
s and tantalums. The unit is all

W in chip resistance; 1/32W in

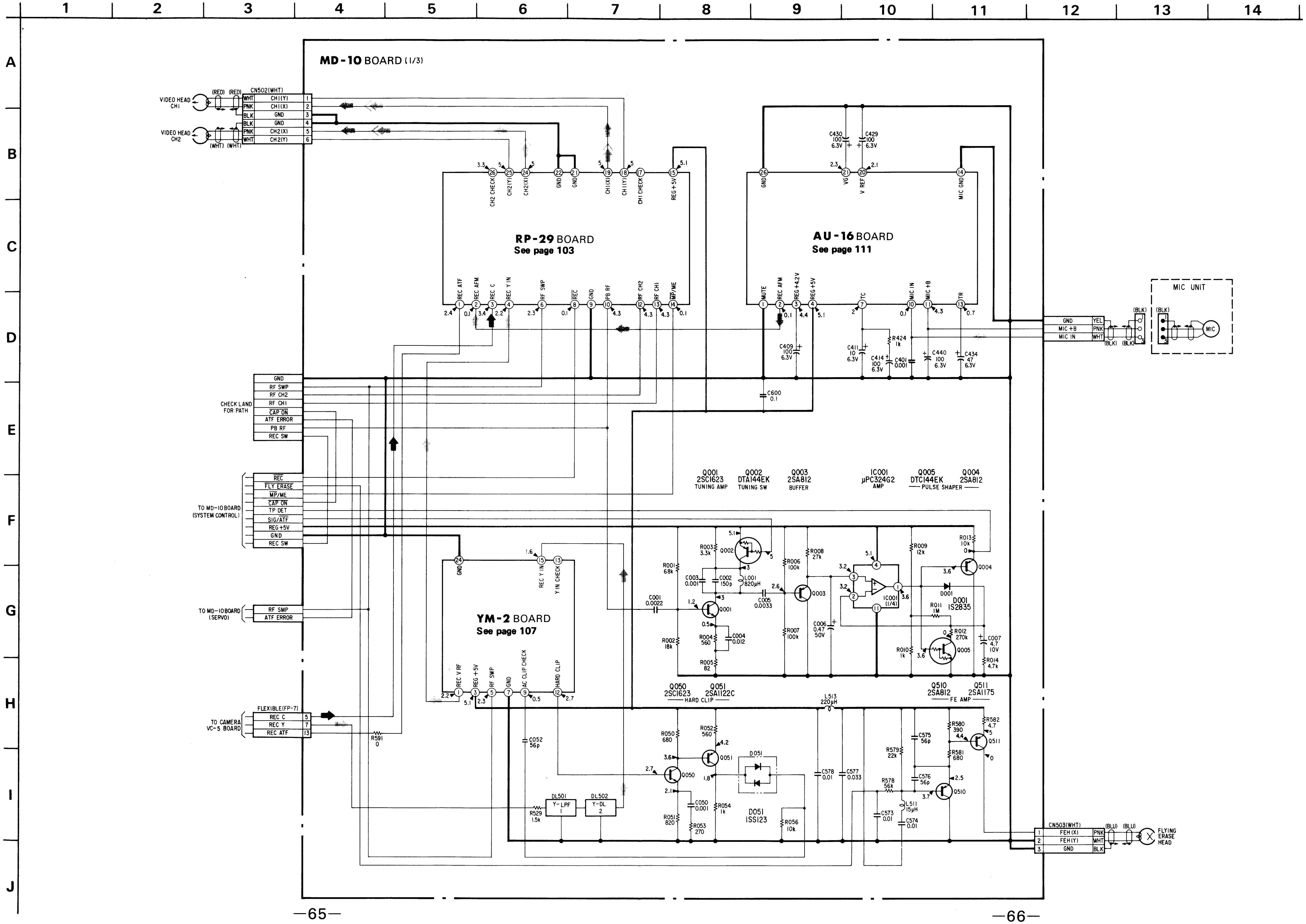
0kΩ
resistors have characteristics
omitted.

n.

age value and waveform
of pattern box.
reference value between the

digital multimeter DC10MΩ)
ll in the recording mode of

MD-10 (VIDEO, AUDIO) SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
MD-10 BOARD (1/3)
VIDEO HEAD CH1
VIDEO HEAD CH2
(RED) (RED)
(WHT) (WHT)
CN502(WHT)
WHT CH1(Y) 1
PNK CH1(X) 2
BLK GND 3
BLK GND 4
PNK CH2(X) 5
WHT CH2(Y) 6
RP-29 BOARD
See page 103
CH2 CHECK
CH2(Y)
CH2(X)
GND
GND
CH1(X)
CH1(Y)
CH1 CHECK
REG+5V
REC ATF
REC AFM
REC C
REC Y IN
RF SWP
REC
GND
PB RF
RF CH2
RF CH1
MP/ME
AU-16 BOARD
See page 111
GND
VG
V REF
MIC GND
MUTE
REC AFM
REG+4.2V
REG+5V
TC
MIC IN
MIC +B
TR
C430 100 6.3V
C429 100 6.3V
C409 100 6.3V
C411 10 6.3V
C414 100 6.3V
R424 1k
C401 0.001
C440 100 6.3V
C434 47 6.3V
C600 0.1
GND YEL
MIC +B PNK
MIC IN WHT
(BLK)
MIC UNIT
MIC
CHECK LAND FOR PATH
GND
RF SWP
RF CH2
RF CH1
CAP ON
ATF ERROR
PB RF
REC SW
TO MD-10 BOARD (SYSTEM CONTROL)
REC
FLY ERASE
MP/ME
CAP ON
TP DET
SIG/ATF
REG+5V
GND
REC SW
TO MD-10 BOARD (SERVO)
RF SMP
ATF ERROR
TO CAMERA VC-5 BOARD
FLEXIBLE(FP-7)
REC C 5
REC Y 7
REC ATF 13
R591 0
YM-2 BOARD
See page 107
GND
REC Y IN
Y IN CHECK
REC V RF
REG +5V
RF SWP
GND
AC CLIP CHECK
HARD CLIP
C052 56p
DL501 Y-LPF 1
DL502 Y-DL 2
R529 1.5k
Q001 2SC1623 TUNING AMP
Q002 DTA144EK TUNING SW
Q003 2SA812 BUFFER
IC001 μPC324G2 AMP
Q005 DTC144EK
Q004 2SA812
PULSE SHAPER
R001 68k
R002 18k
R003 3.3k
R004 560
R005 82
C001 0.0022
C002 150p
C003 0.001
C004 0.012
C005 0.0033
L001 820μH
R006 100k
R007 100k
R008 27k
C006 0.47 50V
IC001 (1/4)
R009 12k
R010 1k
R011 1M
R012 270k
R013 10k
R014 4.7k
C007 4.7 10V
D001 1S2835
Q050 2SC1623
Q051 2SA1122C
HARD CLIP
R050 680
R051 820
R052 560
R053 270
R054 1k
R056 10k
C050 0.001
D051 1SS123
L513 220μH
C578 0.01
C577 0.033
Q510 2SA812
Q511 2SA1175
FE AMP
R578 56k
R579 22k
R580 390
R581 680
R582 4.7
C573 0.01
C574 0.01
C575 56p
C576 56p
L511 15μH
CN503(WHT)
1 FEH(X) PNK
2 FEH(Y) WHT
3 GND BLK
(BLU) (BLU)
FLYING ERASE HEAD

- ⊗ : mark is slew hole.
- ○— : lead wire attached to the component side.
- ●— : lead wire attached to the pattern side.
- ▒ : pattern from the side which enables seeing.
- ░ : B+ pattern.
- ▨ : printing resistance.
- The voltage value is all recording mode of operation.
- Digital transistor (MD-10 : Q002, 005, 102, 111, 112, 113, 114, 118, 120, 121, 128, 131, 201, 216)transistor with resistors. Refer to the MD-10 board schematic diagram for digital transistor.

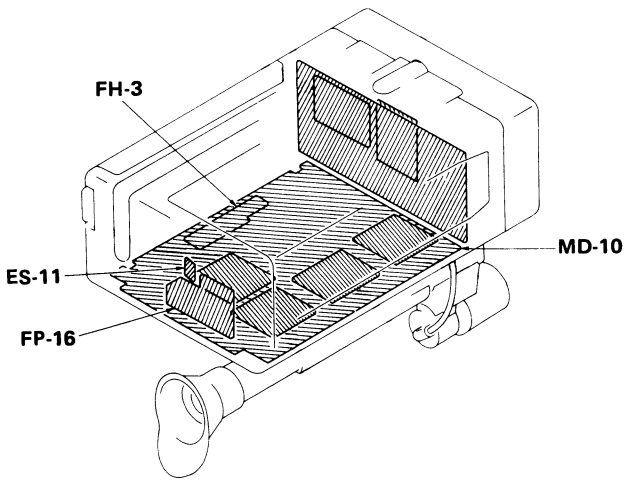
Note

Soldering side: Parts on the soldering side being seen from the soldering are stated.

Component side: Parts on the component side being seen from the component are stated.

Regarding color indication of patterns

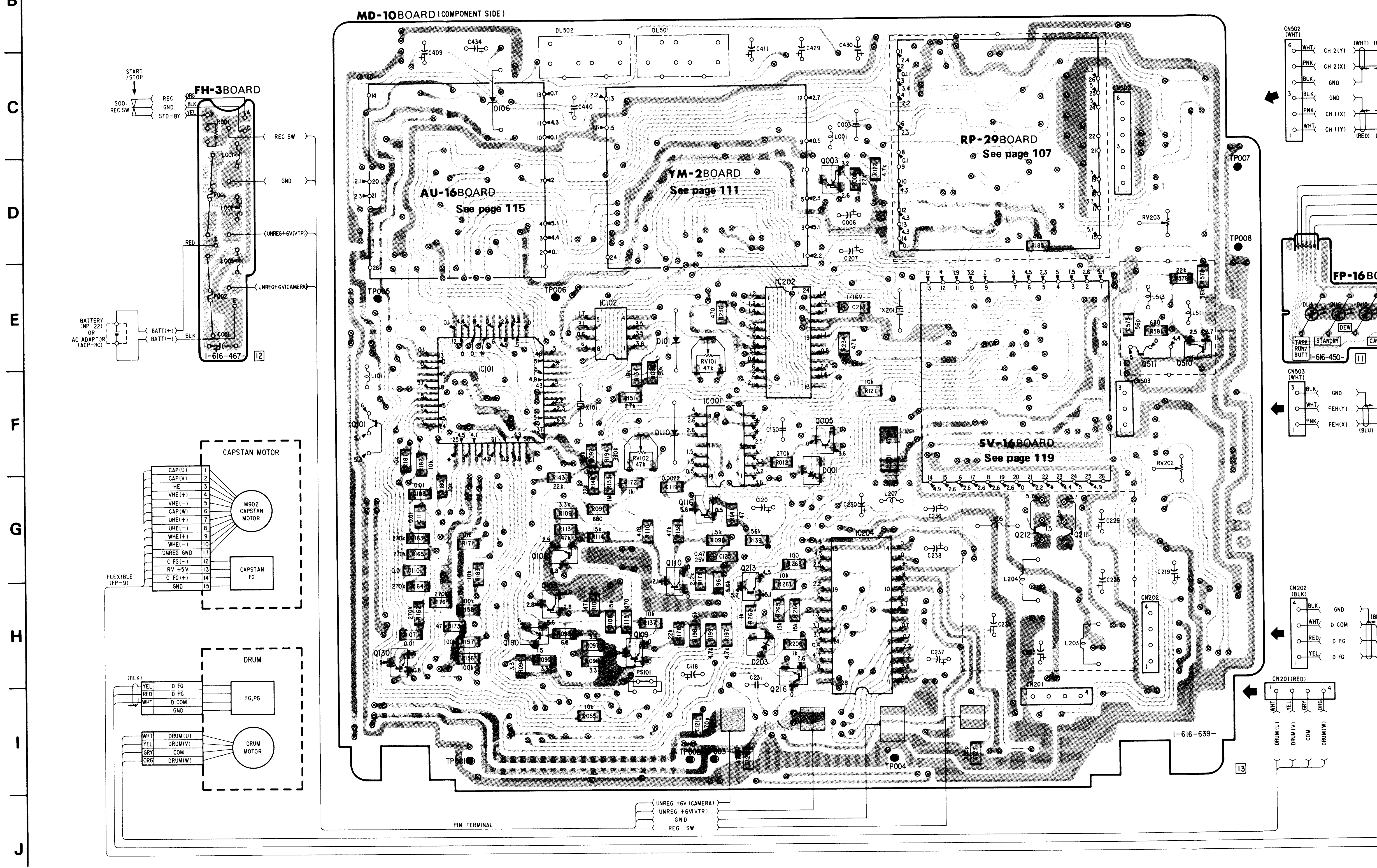
- * Patterns being seen in the state from the surface side are indicated in gray pattern and red pattern (B+ pattern).
- * Pattern being seen in the state of the rear surface side is indicated in green pattern.



FH-3
ES-11
FP-16
MD-10

MD-10 (VIDEO, AUDIO), CC-3 (MODE SWITCH, DEW SENSOR DETECTION), ES-11 (TAPE END SENSOR), FH-3 (POWER SUPPLY), FP-8 (TAPE SELECT, CASSETTE-IN SWITCH), FP-14 (LOADING MOTOR), F

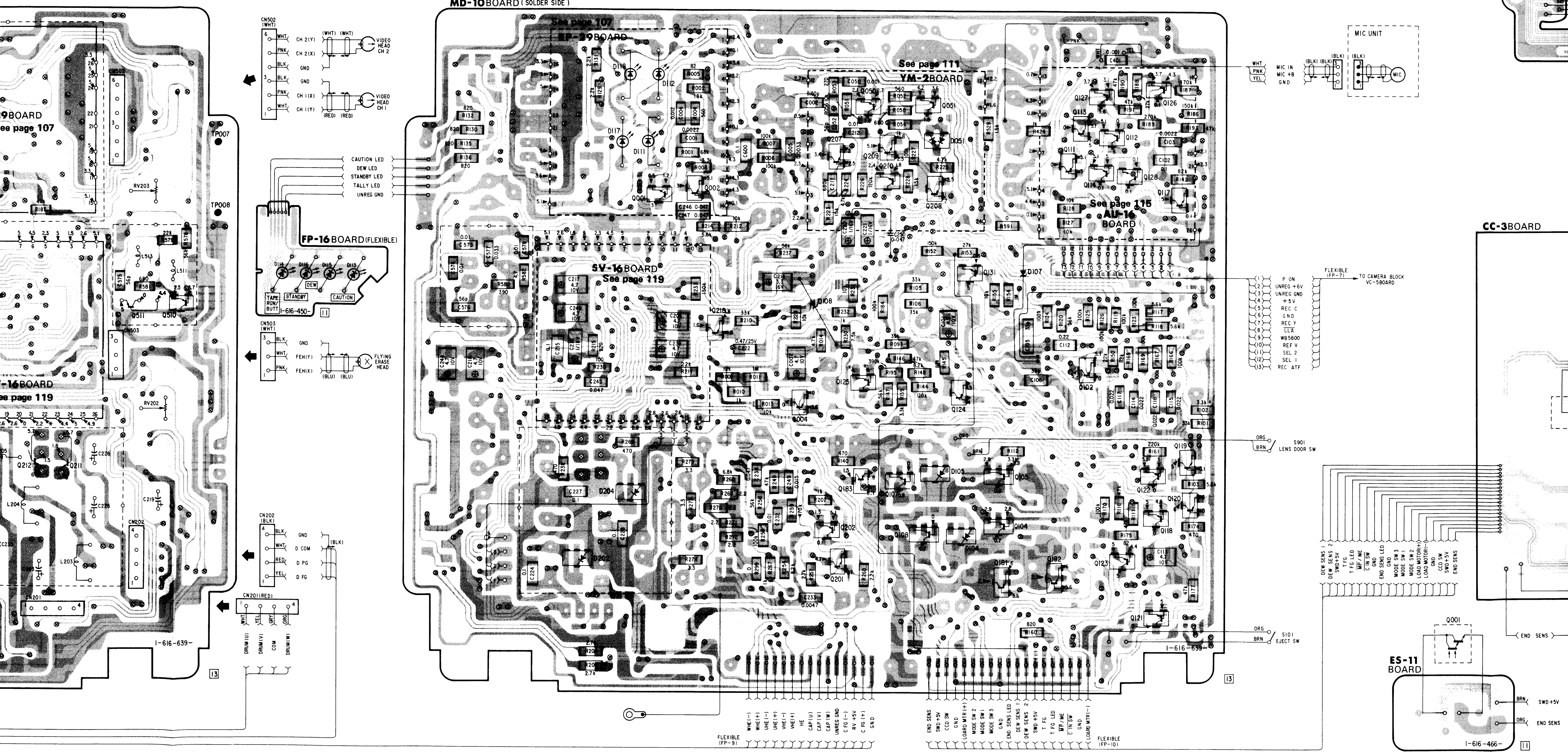
	1	2	3	4	5	6	7	8	9	10	11	12	13
Q · IC				101 130	IC101 180 103	106 IC102 109	110 116 IC001 213	IC202 216 003 005 IC204		212 211	511	510	
D					106		101 110 203	001					
ADJ						RV102	RV101				RV203 RV202		
TP				005	001 006		002 003		004			007 008	



A
B
C
D
E
F
G
H
I
J
START /STOP
S001 REC SW
REC
GND
STD-BY
FH-3BOARD
REC SW
GND
(UNREG+6V(VTR))
(UNREG+6V(CAMERA))
BATTERY (NP-22) OR AC ADAPTOR (ACP-80)
BATT(+)
BATT(−)
1-616-467-
12
CAPSTAN MOTOR
M902 CAPSTAN MOTOR
CAPSTAN FG
FLEXIBLE (FP-9)
DRUM
FG,PG
DRUM MOTOR
MD-10BOARD (COMPONENT SIDE)
AU-16BOARD See page 115
YM-2BOARD See page 111
RP-29BOARD See page 107
SV-16BOARD See page 119
TP005
TP006
TP007
TP008
TP001
TP004
1-616-639-
13
CN502 (WHT)
CH 2(Y)
CH 2(X)
GND
CH 1(X)
CH 1(Y)
FP-16BO
TAPE RUN/BUTT
STANDBY
DEW
1-616-450-
CN503 (WHT)
FEH(Y)
FEH(X)
CN202 (BLK)
D COM
D PG
D FG
CN201(RED)
DRUM(U)
DRUM(V)
COM
DRUM(W)
UNREG +6V (CAMERA)
UNREG +6V(VTR)
GND
REG SW
PIN TERMINAL

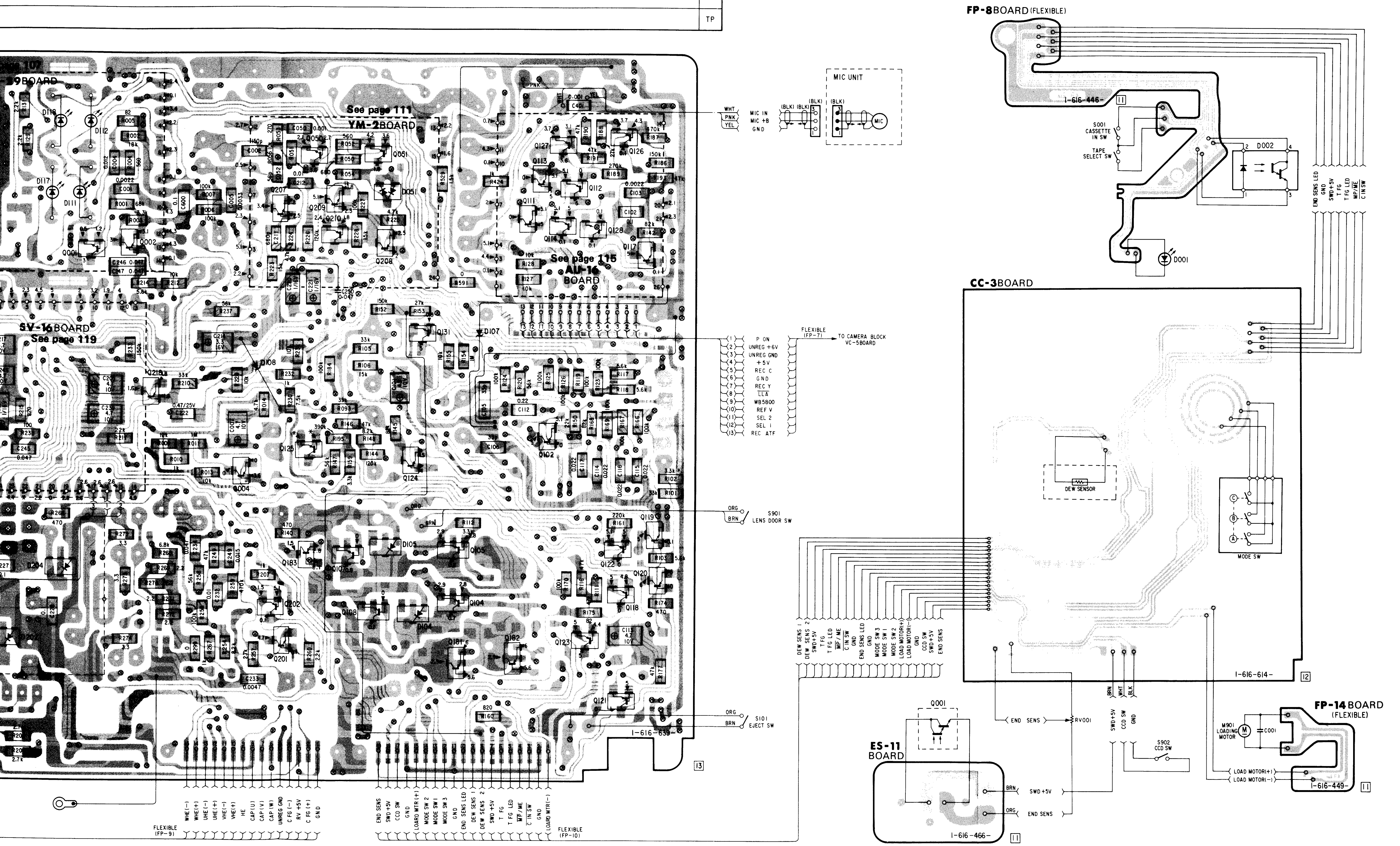
LECT, CASSETTE-IN SWITCH), FP-14 (LOADING MOTOR), FP-16 (LED) PRINTED WIRING BOARDS

	10	11	12	13	14	15	16	17	18	19	20	21	22
Q · IC	212 211	511	510					001 002 218	004 202	050 209 210 207 125 183 107 201	051 208 131 124 108 105 104 181	113 127 111 102 114 182	112 126 128 117 122 118 121 119 120 123
D							202 118 117 204	112 111	108		051 105 104	107	
ADJ		RV203 RV202											
TP			007 008										

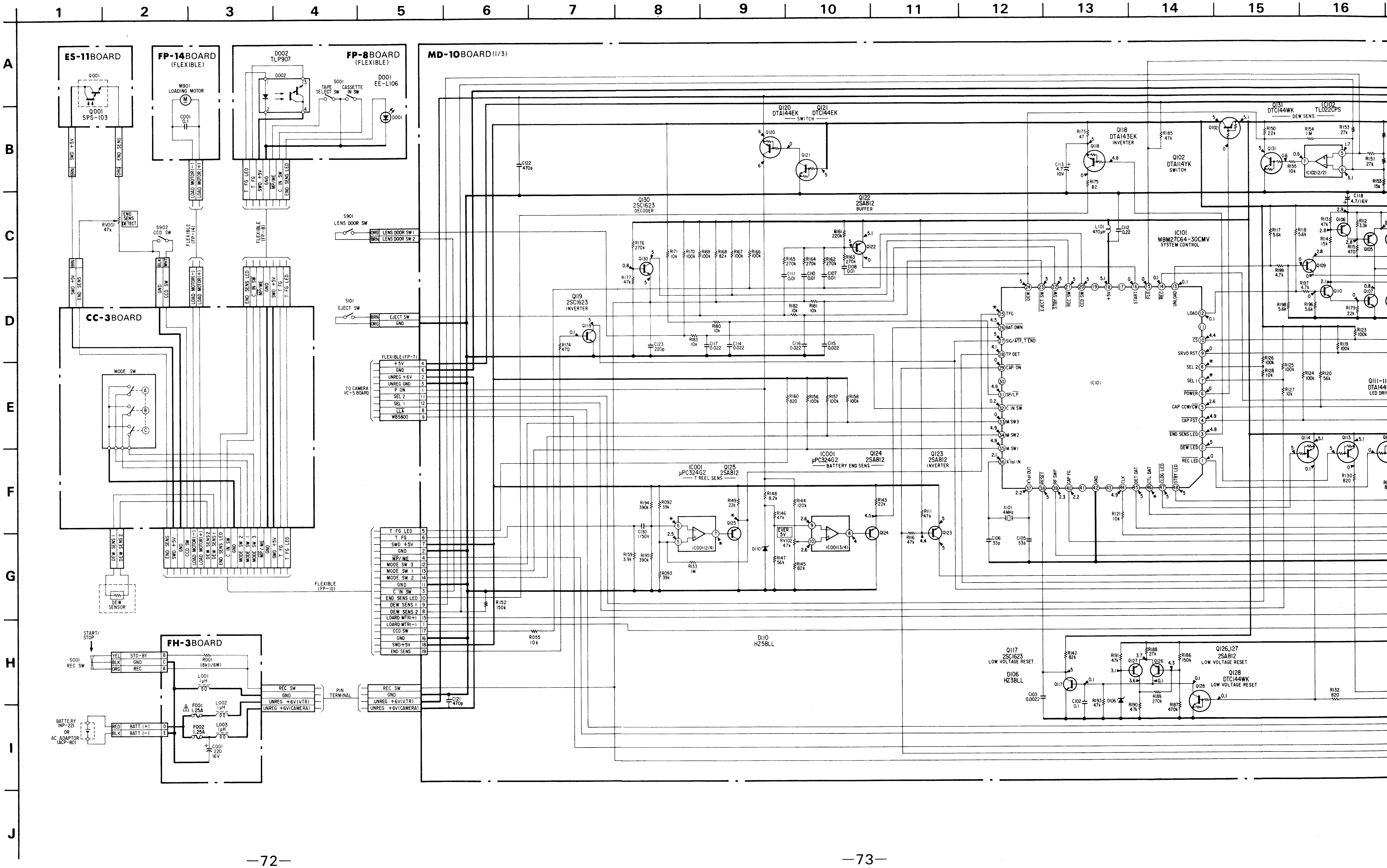


MD-10BOARD (SOLDER SIDE)
See page 107
EP-39BOARD
See page 111
YM-2BOARD
See page 115
AU-16 BOARD
SV-16BOARD
See page 119
9BOARD
ee page 107
-16BOARD
ee page 119
TP007
TP008
CN502 (WHT)
CH 2(Y)
CH 2(X)
GND
GND
CH 1(X)
CH 1(Y)
(WHT) (WHT)
(RED) (RED)
VIDEO HEAD CH 2
VIDEO HEAD CH 1
CAUTION LED
DEW LED
STANDBY LED
TALLY LED
UNREG GND
FP-16BOARD (FLEXIBLE)
TAPE RUN/BUTT
STANDBY
DEW
CAUTION
1-616-450-
CN503 (WHT)
GND
FEH(Y)
FEH(X)
(BLU) (BLU)
FLYING ERASE HEAD
CN202 (BLK)
GND
D COM
D PG
D FG
(BLK)
CN201 (RED)
DRUM(U)
DRUM(V)
COM
DRUM(W)
1-616-639-
13
WHE(−)
WHE(+)
UHE(+)
UHE(−)
VHE(−)
VHE(+)
HE
CAP(U)
CAP(V)
CAP(W)
UNREG GND
C FG(−)
RV +5V
C FG(+)
GND
FLEXIBLE (FP-9)
END SENS
SWD +5V
CCD SW
GND
LOAD MTR(+)
MODE SW 2
MODE SW 1
MODE SW 3
GND
END SENS LED
DEW SENS 1
DEW SENS 2
SWD +5V
T FG
T FG LED
MP/ME
C IN SW
GND
LOAD MTR(−)
FLEXIBLE (FP-10)
WHT
PNK
YEL
MIC IN
MIC +B
GND
(BLK) (BLK)
(BLK)
(BLK)
MIC UNIT
MIC
FLEXIBLE (FP-7)
TO CAMERA BLOCK VC-5BOARD
P ON
UNREG +6V
UNREG GND
+5V
REC C
GND
REC Y
LLA
WB5800
REF V
SEL 2
SEL 1
REC ATF
ORG
BRN
S901 LENS DOOR SW
S101 EJECT SW
FP-8BOARD (FLEXIBLE
CC-3BOARD
DEW SENS 1
DEW SENS 2
SWD +5V
T FG
T FG LED
MP/ME
C IN SW
GND
END SENS LED
MODE SW 3
MODE SW 1
MODE SW 2
LOAD MOTOR(+)
GND
CCD SW
SWD +5V
END SENS
END SENS
Q001
ES-11 BOARD
BRN
SWD +5V
ORG
END SENS
1-616-466-
11

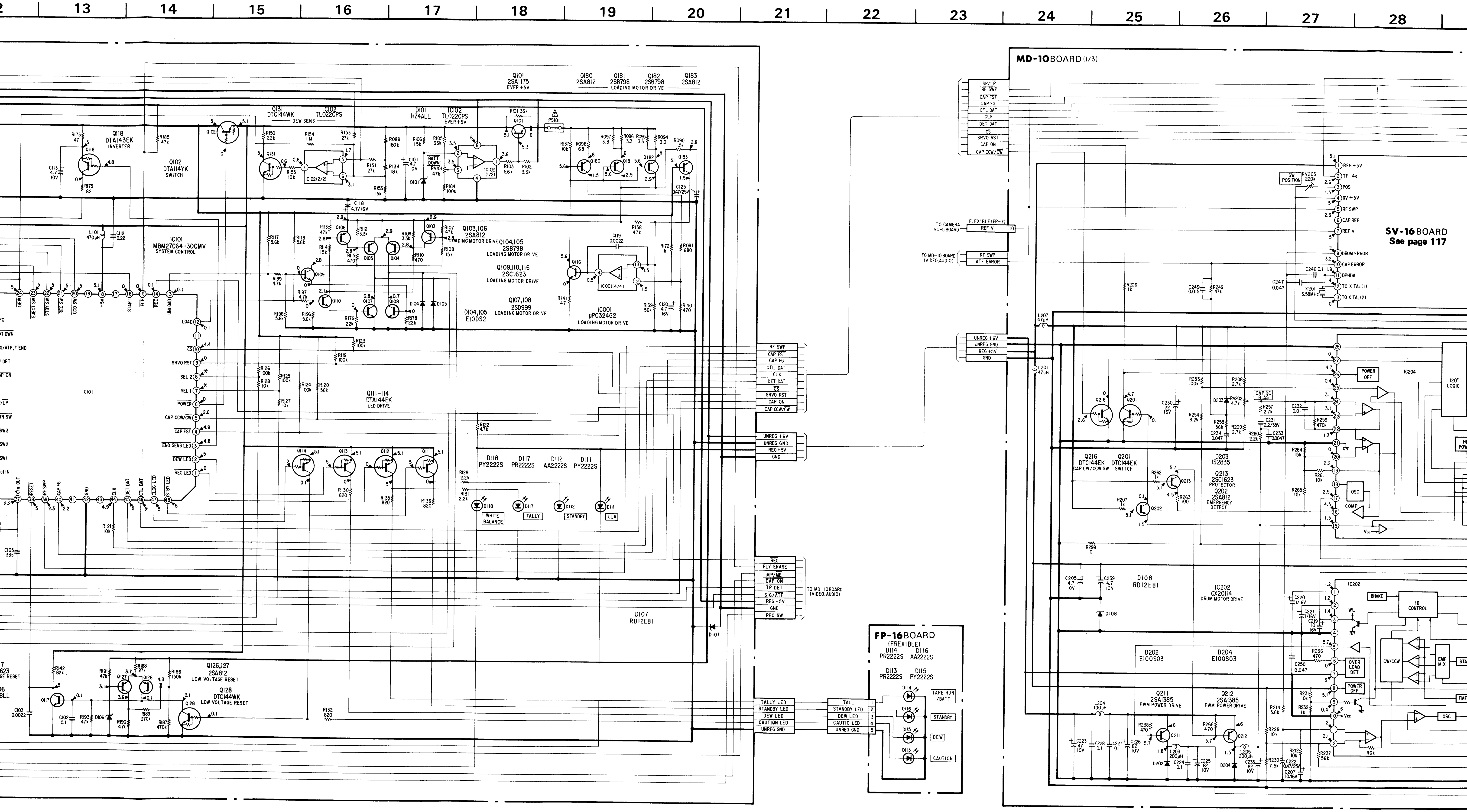
16	17	18	19	20	21	22	
	001 002 218	004 202	207 201 050 209 210 125 183 107	051 208 108 131 124 105 104 181	111 113 127 102 114 182	112 128 126 123 122 118 121 117 119 120	Q · IC
202 118 117 204	112 111	108		051 105 104	107		D
							ADJ
							TP

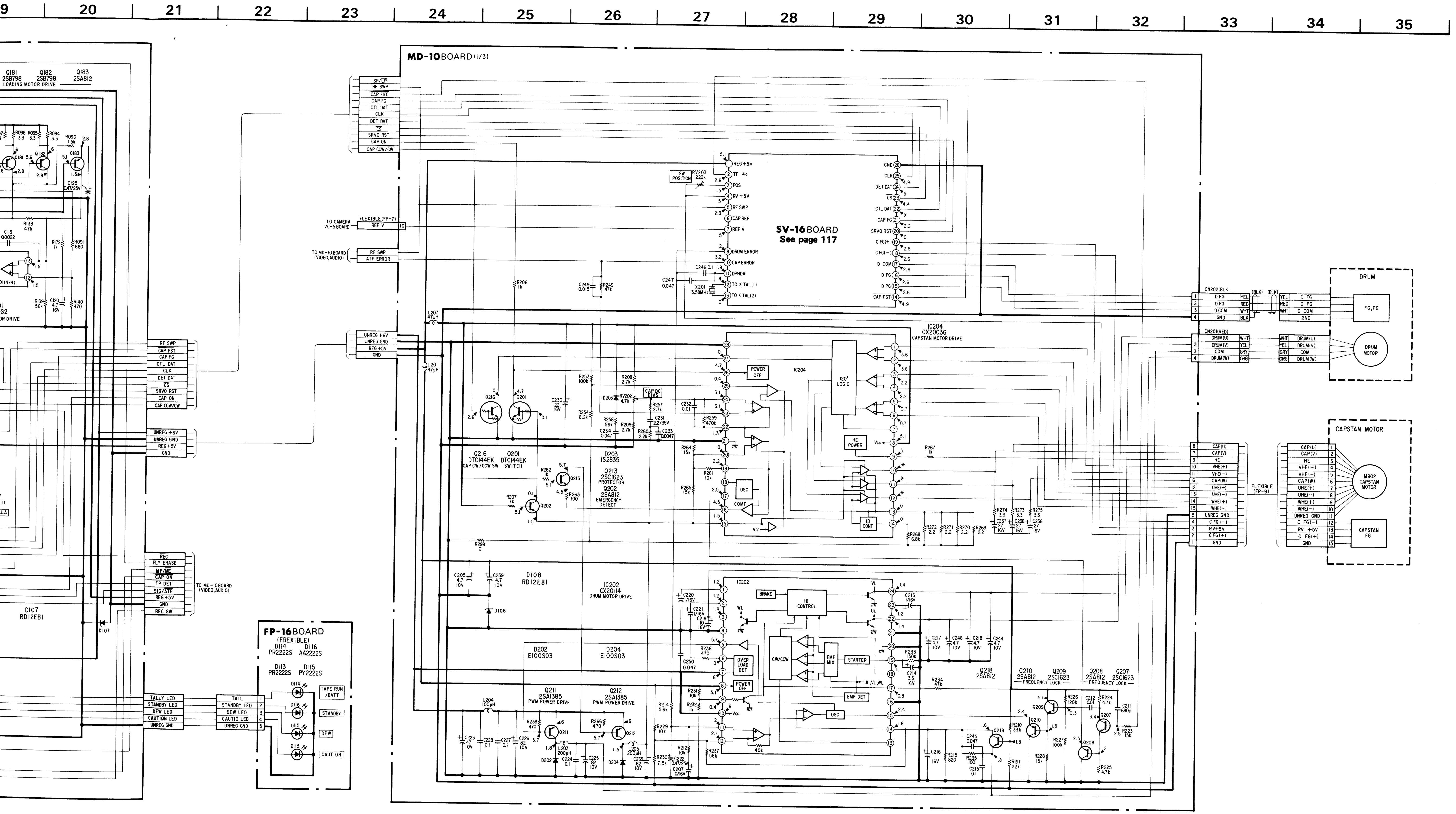

See page 111
YM-2BOARD
See page 115
AU-16
BOARD
SV-16BOARD
See page 119
39BOARD
1-616-639-
13
MIC UNIT
WHT
PNK
YEL
MIC IN
MIC +B
GND
(BLK)
MIC
FLEXIBLE (FP-7)
TO CAMERA BLOCK VC-5BOARD
P ON
UNREG +6V
UNREG GND
+5V
REC C
GND
REC Y
LLA
WB5800
REF V
SEL 2
SEL 1
REC ATF
ORG
BRN
S901 LENS DOOR SW
S101 EJECT SW
WHE(−)
WHE(+)
UHE(−)
UHE(+)
VHE(−)
VHE(+)
HE
CAP(U)
CAP(V)
CAP(W)
UNREG GND
C FG (−)
RV +5V
C FG (+)
GND
FLEXIBLE (FP-9)
END SENS
SWD +5V
CCD SW
GND
LOAD MTR(+)
MODE SW 2
MODE SW 1
MODE SW 3
GND
END SENS LED
DEW SENS 1
DEW SENS 2
SWD +5V
T FG
T FG LED
MP/ME
C IN SW
GND
LOAD MTR(−)
FLEXIBLE (FP-10)
FP-8BOARD (FLEXIBLE)
1-616-446-
11
S001 CASSETTE IN SW
TAPE SELECT SW
D002
D001
END SENS LED
GND
SWD+5V
T FG
T FG LED
MP/ME
C IN SW
CC-3BOARD
DEW SENSOR
MODE SW
1-616-614-
12
DEW SENS 1
DEW SENS 2
SWD+5V
T FG
T FG LED
MP/ME
C IN SW
GND
END SENS LED
GND
MODE SW 3
MODE SW 1
MODE SW 2
LOAD MOTOR(+)
LOAD MOTOR(−)
GND
CCD SW
SWD+5V
END SENS
BRN
WHT
BLK
SWD+5V
CCD SW
GND
END SENS
RV001
S902 CCD SW
Q001
ES-11 BOARD
SWD +5V
END SENS
1-616-466-
11
FP-14 BOARD (FLEXIBLE)
M901 LOADING MOTOR
C001
LOAD MOTOR(+)
LOAD MOTOR(−)
1-616-449-
11

MD-10 (SERVO, SYSTEM CONTROL), CC-3 (MODE SWITCH, DEW SENSOR DETECTION), ES-11 (TAPE END SENSOR), FH-3 (POWER SUPPLY), FP-8 (TAPE SELECT, CASSETTE-IN SWITCH), FP-14 (LOADING MOTOR), FP-16 (LED) SCHEMATIC DIAGRAMS


ES-11BOARD
Q001 SPS-103
FP-14BOARD (FLEXIBLE)
M901 LOADING MOTOR
FP-8BOARD (FLEXIBLE)
D002 TLP907
S001 TAPE SELECT SW CASSETTE IN SW
D001 EE-L106
MD-10BOARD (1/3)
CC-3BOARD
MODE SW
DEW SENSOR
S902 CCD SW
RV001 47k
S901 LENS DOOR SW
S101 EJECT SW
FLEXIBLE (FP-7)
TO CAMERA VC-5 BOARD
FLEXIBLE (FP-10)
FH-3BOARD
S001 REC SW
START/STOP
BATTERY (NP-22) OR AC ADAPTOR (ACP-80)
F001 1.25A
F002 1.25A
PIN TERMINAL
Q120 DTA144EK
Q121 DTC144EK
SWITCH
Q130 2SC1623 DECODER
Q122 2SA812 BUFFER
Q119 2SC1623 INVERTER
IC001 μPC324G2 Q125 2SA812 T REEL SENS
IC001 μPC324G2 Q124 2SA812 BATTERY END SENS
Q123 2SA812 INVERTER
D110 HZ5BLL
Q118 DTA143EK INVERTER
Q102 DTA114YK SWITCH
Q131 DTC144WK
IC102 TL022CPS
DEW SENS
IC101 MBM27C64-30CMV SYSTEM CONTROL
X101 4MHz
Q117 2SC1623 LOW VOLTAGE RESET
D106 HZ3BLL
Q126,127 2SA812 LOW VOLTAGE RESET
Q128 DTC144WK LOW VOLTAGE RESET
Q111-11 DTA144 LED DRI
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

CH), FP-14 (LOADING MOTOR), FP-16 (LED) SCHEMATIC DIAGRAMS


2
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
Q118 DTA143EK INVERTER
Q102 DTA114YK SWITCH
Q131 DTC144WK
IC102 TL022CPS
DEW SENS
D101 HZ4ALL
IC102 TL022CPS EVER+5V
Q101 2SA1175 EVER+5V
Q180 2SA812
Q181 2SB798
Q182 2SB798
Q183 2SA812
LOADING MOTOR DRIVE
PS101
BATT DOWN
IC101 MBM27C64-30CMV SYSTEM CONTROL
Q103,106 2SA812 LOADING MOTOR DRIVE
Q104,105 2SB798 LOADING MOTOR DRIVE
Q109,110,116 2SC1623 LOADING MOTOR DRIVE
Q107,108 2SD999 LOADING MOTOR DRIVE
D104,105 E10DS2
IC001 μPC324G2 LOADING MOTOR DRIVE
Q111-114 DTA144EK LED DRIVE
D118 PY2222S
D117 PR2222S
D112 AA2222S
D111 PY2222S
WHITE BALANCE
TALLY
STANDBY
LLA
RF SWP
CAP FST
CAP FG
CTL DAT
CLK
DET DAT
CS
SRVO RST
CAP ON
CAP CCW/CW
UNREG +6V
UNREG GND
REG +5V
GND
REC
FLY ERASE
MP/ME
CAP ON
TP DET
SIG/ATF
REG+5V
GND
REC SW
TO MD-10 BOARD (VIDEO, AUDIO)
D107 RD12EB1
Q126,127 2SA812 LOW VOLTAGE RESET
Q128 DTC144WK LOW VOLTAGE RESET
TALLY LED
STANDBY LED
DEW LED
CAUTION LED
UNREG GND
FP-16 BOARD (FREXIBLE)
D114 PR2222S
D116 AA2222S
D113 PR2222S
D115 PY2222S
TAPE RUN /BATT
STANDBY
DEW
CAUTION
MD-10 BOARD (1/3)
SP/LP
TO CAMERA VC-5 BOARD
FLEXIBLE (FP-7)
REF V
TO MD-10 BOARD (VIDEO, AUDIO)
ATF ERROR
SW POSITION
REG+5V
DRUM ERROR
CAP ERROR
SV-16 BOARD See page 117
IC204
POWER OFF
120° LOGIC
CAP DC BIAS
Q216 DTC144EK CAP CW/CCW SW
Q201 DTC144EK SWITCH
D203 1S2835
Q213 2SC1623 PROTECTOR
Q202 2SA812 EMERGENCY DETECT
OSC
COMP
D108 RD12EB1
IC202 CX20114 DRUM MOTOR DRIVE
BRAKE
18 CONTROL
CW/CCW
EMF MIX
OVER LOAD DET
D202 E10QS03
D204 E10QS03
Q211 2SA1385 PWM POWER DRIVE
Q212 2SA1385 PWM POWER DRIVE


20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
Q181 2SB798
Q182 2SB798
Q183 2SA812
LOADING MOTOR DRIVE
MD-10BOARD (1/3)
SV-16BOARD
See page 117
SP/LP
RF SWP
CAP FST
CAP FG
CTL DAT
CLK
DET DAT
CS
SRVO RST
CAP ON
CAP CCW/CW
TO CAMERA VC-5 BOARD
FLEXIBLE (FP-7)
REF V
TO MD-10 BOARD (VIDEO,AUDIO)
ATF ERROR
REG+5V
TF 4a
POS
RV +5V
CAP REF
DRUM ERROR
CAP ERROR
DPHDA
TO X TAL(1)
TO X TAL(2)
GND
DET DAT
CTL DAT
SRVO RST
C FG(+)
C FG(-)
D COM
D FG
D PG
CAP FST
SW POSITION
RV203 220k
X201 3.58MHz
IC204 CX20036
CAPSTAN MOTOR DRIVE
UNREG +6V
UNREG GND
REG +5V
POWER OFF
120° LOGIC
HE POWER
OSC
COMP
IB CONT
CAP DC BIAS
Q216 DTC144EK CAP CW/CCW SW
Q201 DTC144EK SWITCH
D203 1S2835
Q213 2SC1623 PROTECTOR
Q202 2SA812 EMERGENCY DETECT
CN202(BLK)
CN201(RED)
DRUM
FG,PG
DRUM MOTOR
DRUM(U)
DRUM(V)
COM
DRUM(W)
CAPSTAN MOTOR
CAP(U)
CAP(V)
HE
VHE(+)
VHE(-)
CAP(W)
UHE(+)
UHE(-)
WHE(+)
WHE(-)
UNREG GND
RV +5V
FLEXIBLE (FP-9)
M902 CAPSTAN MOTOR
CAPSTAN FG
REC
FLY ERASE
MP/ME
CAP ON
TP DET
SIG/ATF
REC SW
TO MD-10 BOARD (VIDEO,AUDIO)
D107 RD12EB1
D108 RD12EB1
IC202 CX20114
DRUM MOTOR DRIVE
BRAKE
IB CONTROL
OVER LOAD DET
CW/CCW
EMF MIX
STARTER
EMF DET
UL,VL,WL
D202 E10QS03
D204 E10QS03
Q211 2SA1385 PWM POWER DRIVE
Q212 2SA1385 PWM POWER DRIVE
Q218 2SA812
Q210 2SA812
Q209 2SC1623
FREQUENCY LOCK
Q208 2SA812
Q207 2SC1623
FP-16BOARD
(FREXIBLE)
D114 PR2222S
D116 AA2222S
D113 PR2222S
D115 PY2222S
TAPE RUN /BATT
STANDBY
DEW
CAUTION
TALLY LED
STANDBY LED
DEW LED
CAUTION LED
UNREG GND

SERVO, SYSTEM CONTROL

SERVO, SYSTEM CONTROL

MD-10 (SERVO, SYSTEM COUTROL), CC-3 (MODE SWITCH, DEW SENSOR DETECTION), ES-11 (TAPE EVD SENSOR), FH-3 (POWER SUPPLY), FP-8 (TAPE SELECT, CASSETTE-IN SWITCH), FP-14 (LOADI

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all μF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.

Note (SCHEMATIC DIAGRAM) :

- ▭ : panel designation.
- ▭ : adjustment designation.
- ▬ : B+ line.
- Measuring conditions of voltage value and waveform
  (1) The subject is color bar of pattern box.
  (2) The voltage value is a reference value between the grounding.
  (The tester used is the digital multimeter DC10MΩ)
  (3) The voltage value are all in the recording mode of operation.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piece portant le numéro spécifié.

Note (PRINTED WIRING BOARD) :

- ⊗ : mark is slew hole.
- ○— : lead wire attached to the component side.
- ●— : lead wire attached to the pattern side.
- ▒ : pattern from the side which enables seeing.
- ░ : pattern of the rear side.
- ░ : B+ pattern.
- ▨ : printing resistance.
- The voltage value is all recording mode of operation.

Note

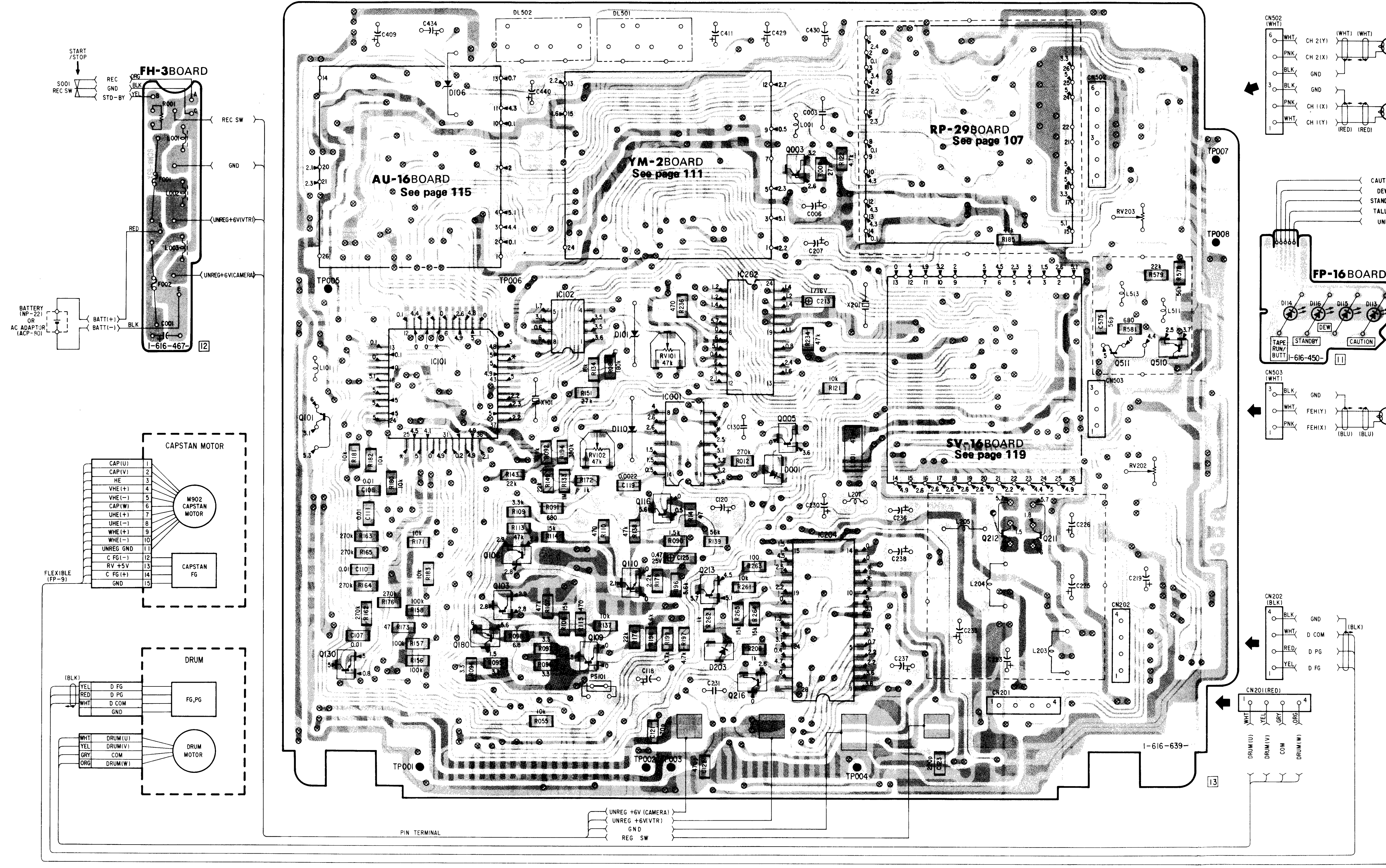
Soldering side:	**Parts on the soldering side being seen from the soldering are stated.**
Component side:	**Parts on the component side being seen from the component are stated.**

Regarding color indication of patterns

*** Patterns being seen in the state from the surface side are indicated in gray pattern and red pattern (B+ pattern).**

*** Pattern being seen in the state of the rear surface side is indicated in green pattern.**

	1	2	3	4	5	6	7	8	9	10	11	12	13
Q · IC			101	130	IC101 180 103 106	IC102 109 110	116 IC001 213 IC202 216	003 005 IC204		212 211	511 510		
D					106	101 110	203 001						
ADJ						RV102	RV101				RV203 RV202		
TP			005	001	006	002	003	004				007 008	

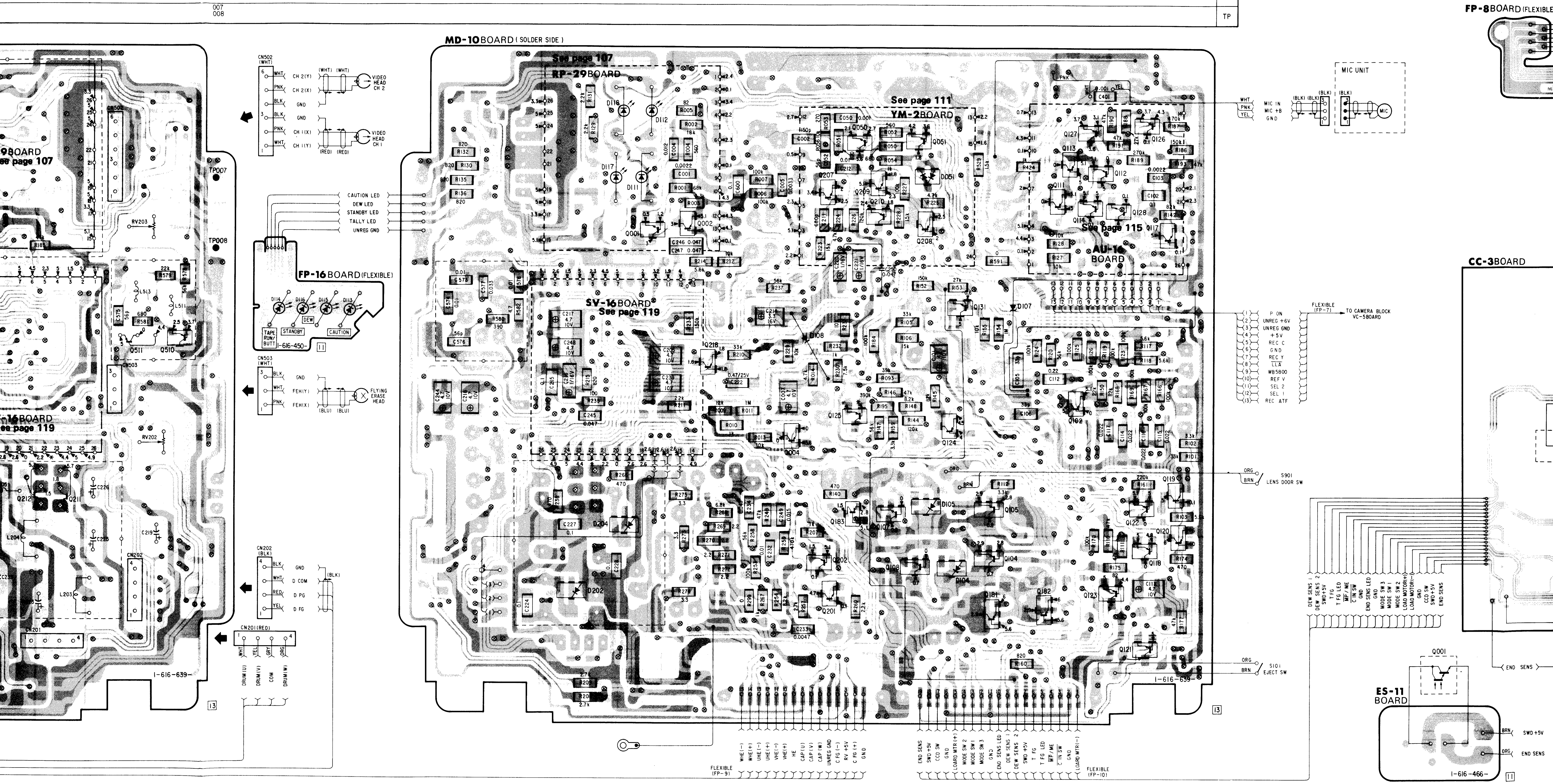


MD-10BOARD (COMPONENT SIDE)
FH-3BOARD
START /STOP
S001 REC SW
REC
GND
STD-BY
REC SW
GND
UNREG+6V(VTR)
UNREG+6V(CAMERA)
BATTERY (NP-22) OR AC ADAPTOR (ACP-80)
BATT(+)
BATT(−)
1-616-467-
12
CAPSTAN MOTOR
M902 CAPSTAN MOTOR
CAPSTAN FG
CAP(U)
CAP(V)
HE
VHE(+)
VHE(−)
CAP(W)
UHE(+)
UHE(−)
WHE(+)
WHE(−)
UNREG GND
C FG(−)
RV +5V
C FG(+)
GND
FLEXIBLE (FP-9)
DRUM
FG,PG
DRUM MOTOR
D FG
D PG
D COM
DRUM(U)
DRUM(V)
COM
DRUM(W)
AU-16BOARD See page 115
YM-2BOARD See page 111
RP-29BOARD See page 107
SV-16BOARD See page 119
FP-16BOARD
CN502 (WHT)
CN503 (WHT)
CN202 (BLK)
CN201 (RED)
TP001
TP002
TP003
TP004
TP005
TP006
TP007
TP008
IC101
IC102
IC001
IC202
IC204
RV101
RV102
RV202
RV203
DL501
DL502
PS101
1-616-639-
13
1-616-450-
11
UNREG +6V (CAMERA)
UNREG +6V(VTR)
GND
REG SW
PIN TERMINAL

Y), FP-8 (TAPE SELECT, CASSETTE-IN SWITCH), FP-14 (LOADING MOTOR), FP-16 (LED) PRINTED WIRING BOARDS

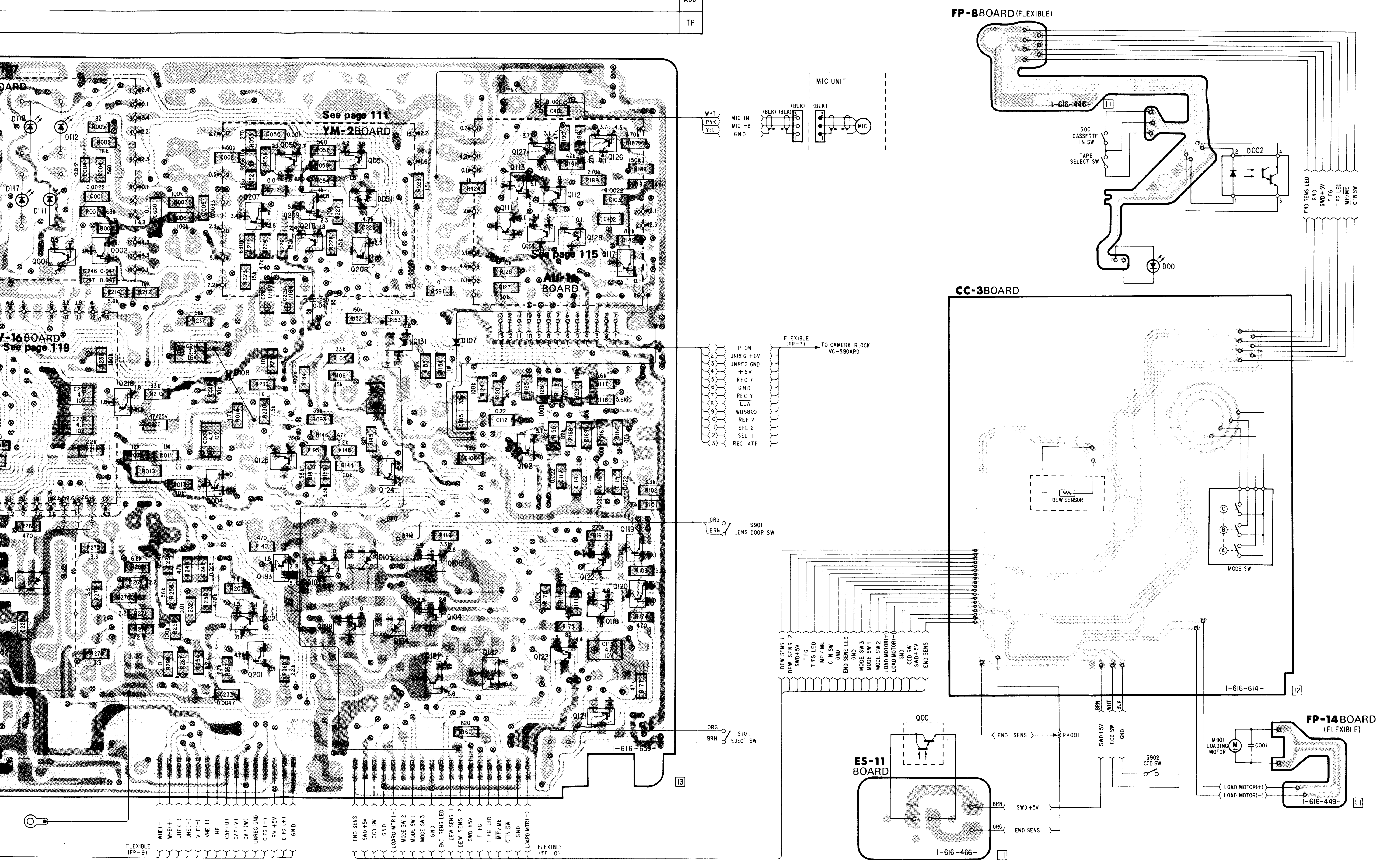
10	11	12	13	14	15	16	17	18	19	20	21	22	
212 211	511 510					001	002 218	207 004 202 201	050 209 210 051 208 125 183 107 108	131 124 105 104 181	113 127 112 111 114 128 102 123 182	126 117 122 119 118 120 121	Q · IC
					202	118 117 112 111 204		108	051 105	104 107			D
	RV203 RV202												ADJ
		007 008											TP

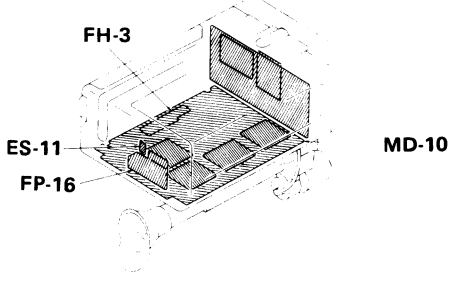
23	24	25


FP-8 BOARD (FLEXIBLE)
9 BOARD
See page 107
-16 BOARD
See page 119
CN502 (WHT)
CH 2(Y)
CH 2(X)
GND
GND
CH 1(X)
CH 1(Y)
VIDEO HEAD CH 2
VIDEO HEAD CH 1
(WHT) (WHT)
(RED) (RED)
CAUTION LED
DEW LED
STANDBY LED
TALLY LED
UNREG GND
FP-16 BOARD (FLEXIBLE)
D114 D116 D115 D113
TAPE RUN/BUTT
STANDBY
DEW
CAUTION
1-616-450-
11
CN503 (WHT)
GND
FEH(Y)
FEH(X)
FLYING ERASE HEAD
(BLU) (BLU)
CN202 (BLK)
GND
D COM
D PG
D FG
(BLK)
CN201 (RED)
DRUM(U)
DRUM(V)
COM
DRUM(W)
WHT YEL GRY ORG
BLK WHT PNK RED
TP007
TP008
RV203
RV202
Q511 Q510
Q212 Q211
L513 L511 L204 L203
CN503 CN202 CN201
1-616-639-
13
MD-10 BOARD (SOLDER SIDE)
See page 107
RP-29 BOARD
See page 111
YM-2 BOARD
See page 115
AU-16 BOARD
SV-16 BOARD
See page 119
D118 D112 D117 D111
Q001 Q002
Q050 Q051 D051 Q207 Q209 Q210 Q208
Q127 Q126 Q113 Q112 Q111 Q114 Q128 Q117
Q131 D107 Q218 D108 Q125 Q124 Q004
Q117 Q102 Q119 Q122 Q120 Q118 Q123 Q121
D105 Q105 Q183 Q107 Q202 Q106 D104 Q104 Q201 Q181 Q182
D204 D202
1-616-639-
13
MIC UNIT
MIC IN
MIC +B
GND
WHT PNK YEL
(BLK) (BLK) (BLK)
MIC
FLEXIBLE (FP-7)
TO CAMERA BLOCK VC-5 BOARD
P ON
UNREG +6V
UNREG GND
+5V
REC C
GND
REC Y
LLA
WB5800
REF V
SEL 2
SEL 1
REC ATF
ORG BRN
S901 LENS DOOR SW
S101 EJECT SW
CC-3 BOARD
DEW SENS 1
DEW SENS 2
SWD +5V
T FG
T FG LED
MF/ME
C.IN SW
GND
END SENS LED
GND
MODE SW 3
MODE SW 1
MODE SW 2
LOAD MOTOR(+)
LOAD MOTOR(-)
GND
CCD SW
SWD +5V
END SENS
Q001
END SENS
ES-11 BOARD
BRN SWD +5V
ORG END SENS
1-616-466-
11
WHE(-)
WHE(+)
UHE(-)
UHE(+)
VHE(-)
VHE(+)
HE
CAP(U)
CAP(V)
CAP(W)
UNREG GND
C FG(-)
RV +5V
C FG(+)
GND
FLEXIBLE (FP-9)
END SENS
SWD +5V
CCD SW
GND
LOAD MTR(+)
MODE SW 2
MODE SW 1
MODE SW 3
GND
END SENS LED
DEW SENS 1
DEW SENS 2
SWD +5V
T FG
T FG LED
MF/ME
C.IN SW
GND
LOAD MTR(-)
FLEXIBLE (FP-10)

NG BOARDS

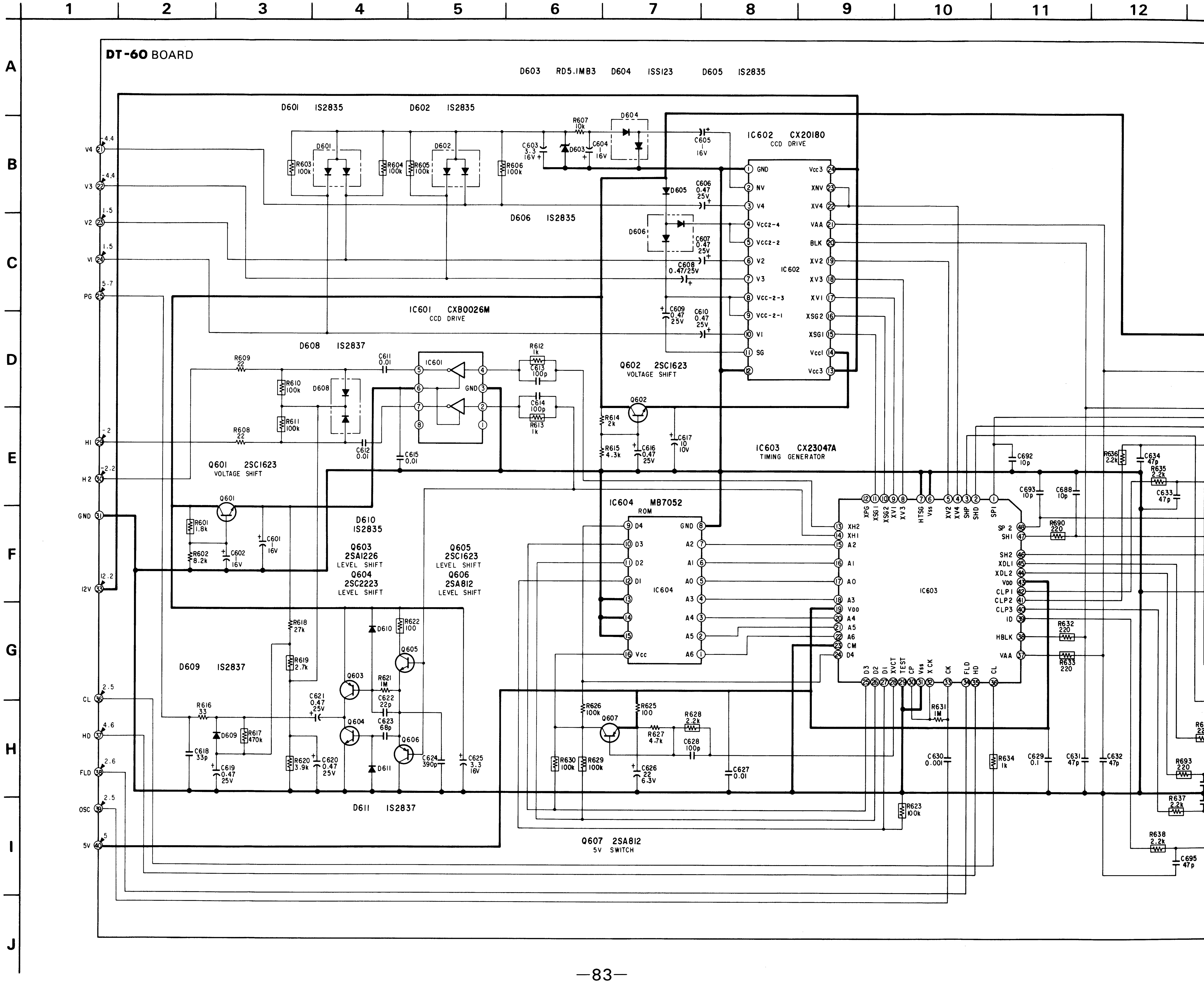
16	17	18	19	20	21	22	
001	002 218	004 207 202 201	050 209 210 125 183 107 051 208 108	131 124 105 104 181	182 111 113 127 112 114 102 128 123	126 117 122 118 121 119 120	Q · IC
118 117 204 112 111		108	051 105	104 107			D
							ADJ
							TP


23
24
25
26
27
28
29
30
31
See page 111
YM-2BOARD
See page 115
AU-1 BOARD
-16BOARD
See page 119
1-616-639-
13
MIC UNIT
WHT
PNK
YEL
MIC IN
MIC +B
GND
(BLK)
MIC
1 P ON
2 UNREG +6V
3 UNREG GND
4 +5V
5 REC C
6 GND
7 REC Y
8 LLA
9 WB5800
10 REF V
11 SEL 2
12 SEL 1
13 REC ATF
FLEXIBLE (FP-7)
TO CAMERA BLOCK VC-5BOARD
ORG
BRN
S901 LENS DOOR SW
S101 EJECT SW
WHE(−)
WHE(+)
UHE(−)
UHE(+)
VHE(−)
VHE(+)
HE
CAP(U)
CAP(V)
CAP(W)
UNREG GND
C FG (−)
RV +5V
C FG (+)
GND
FLEXIBLE (FP-9)
END SENS
SWD +5V
CCD SW
GND
LOARD MTR (+)
MODE SW 2
MODE SW 1
MODE SW 3
GND
END SENS LED
DEW SENS 1
DEW SENS 2
SWD +5V
T FG
T FG LED
MP/ME
C IN SW
GND
LOARD MTR (−)
FLEXIBLE (FP-10)
DEW SENS 1
DEW SENS 2
SWD+5V
T FG
T FG LED
MP / ME
C IN SW
GND
END SENS LED
GND
MODE SW 3
MODE SW 1
MODE SW 2
LOAD MOTOR(+)
LOAD MOTOR(−)
GND
CCD SW
SWD+5V
END SENS
FP-8BOARD (FLEXIBLE)
1-616-446-
11
S001 CASSETTE IN SW
TAPE SELECT SW
D002
D001
END SENS LED
GND
SWD+5V
T FG
T FG LED
MP/ME
C IN SW
CC-3BOARD
DEW SENSOR
MODE SW
1-616-614-
12
BRN
WHT
BLK
END SENS
RV001
SWD +5V
CCD SW
GND
S902 CCD SW
Q001
ES-11 BOARD
SWD +5V
END SENS
1-616-466-
11
FP-14 BOARD (FLEXIBLE)
M901 LOADING MOTOR
M
C001
LOAD MOTOR(+)
LOAD MOTOR(−)
1-616-449-
11

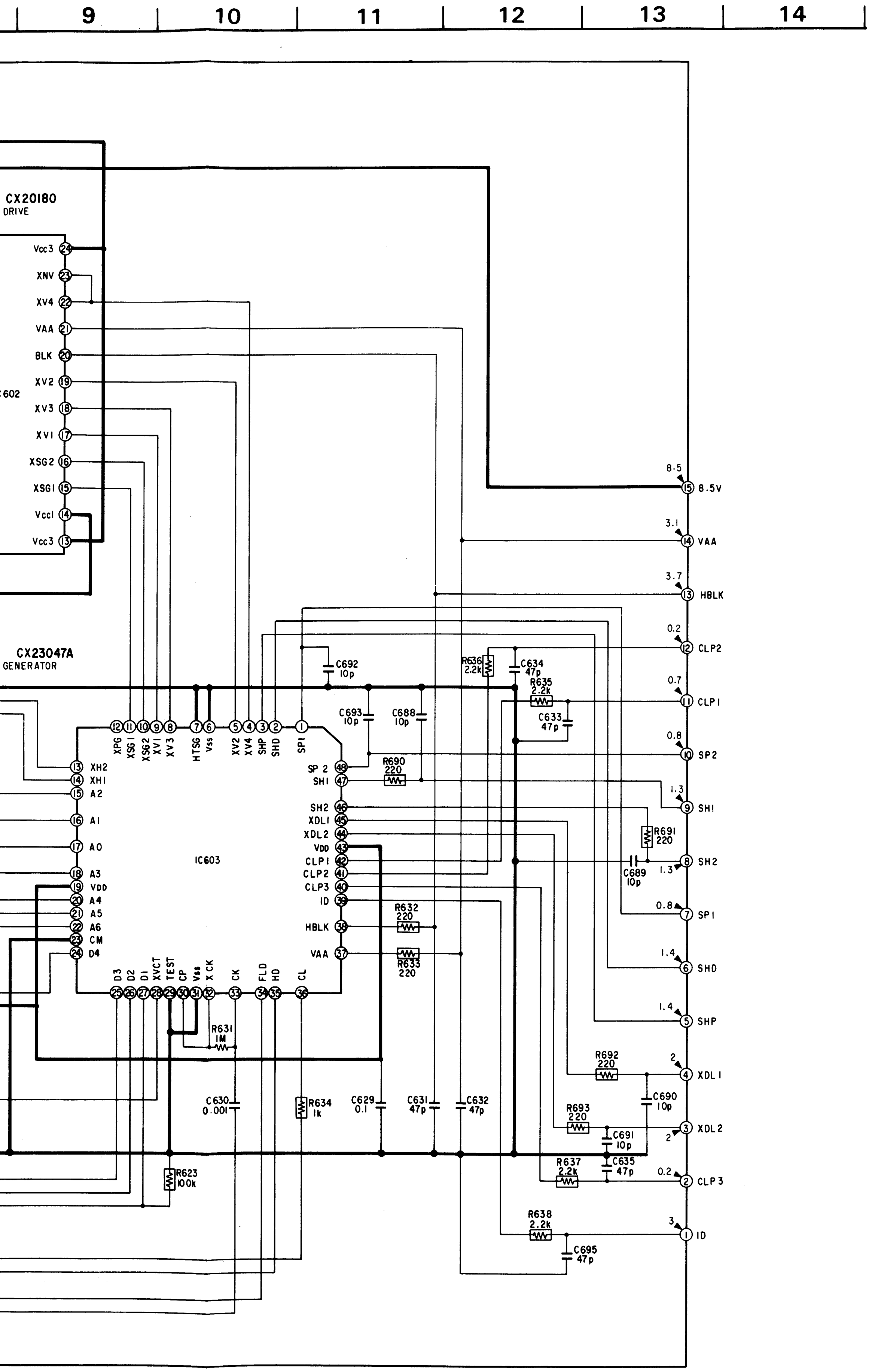

FH-3
ES-11
FP-16
MD-10

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all μF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- ▭ : printing resistor.
- ▭ : panel designation.
- ▭ : adjustment designation.
- ▬ : B+ line.
- Measuring conditions of voltage value and waveform
  (1) The subject is color bar of pattern box.
  (2) The voltage value is a reference value between the grounding.
  (The tester used is the digital multimeter DC10MΩ)
  (3) The voltage value are all in the recording mode of operation.

DT-60 (CCD DRIVE, TIMING GENERATOR) SCHEMATIC DIAGRAM

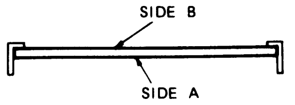


1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I J
DT-60 BOARD
D603 RD5.1MB3 D604 1SS123 D605 1S2835
D601 1S2835 D602 1S2835
D606 1S2835
IC602 CX20180 CCD DRIVE
IC601 CXB0026M CCD DRIVE
D608 1S2837
Q602 2SC1623 VOLTAGE SHIFT
Q601 2SC1623 VOLTAGE SHIFT
IC603 CX23047A TIMING GENERATOR
IC604 MB7052 ROM
D610 1S2835
Q603 2SA1226 LEVEL SHIFT
Q604 2SC2223 LEVEL SHIFT
Q605 2SC1623 LEVEL SHIFT
Q606 2SA812 LEVEL SHIFT
D609 1S2837
D611 1S2837
Q607 2SA812 5V SWITCH
V4 V3 V2 V1 PG H1 H2 GND 12V CL HD FLD OSC 5V



9
10
11
12
13
14
CX20180
DRIVE
Vcc3 ㉔
XNV ㉓
XV4 ㉒
VAA ㉑
BLK ⑳
XV2 ⑲
XV3 ⑱
XV1 ⑰
XSG2 ⑯
XSG1 ⑮
Vcc1 ⑭
Vcc3 ⑬
IC602
CX23047A
GENERATOR
IC603
XPG
XSG1
XSG2
XV1
XV3
HTSG
Vss
XV2
XV4
SHP
SHD
SP1
XH2
XH1
A2
A1
A0
A3
VDD
A4
A5
A6
CM
D4
SP 2
SH1
SH2
XDL1
XDL2
VDD
CLP1
CLP2
CLP3
ID
HBLK
VAA
D3
D2
D1
XVCT
TEST
CP
Vss
X CK
CK
FLD
HD
CL
C692 10p
C693 10p
C688 10p
R690 220
R636 2.2k
C634 47p
R635 2.2k
C633 47p
R691 220
C689 10p
R632 220
R633 220
R631 1M
C630 0.001
R634 1k
C629 0.1
C631 47p
C632 47p
R623 100k
R692 220
C690 10p
R693 220
C691 10p
R637 2.2k
C635 47p
R638 2.2k
C695 47p
8.5
⑮ 8.5V
3.1
⑭ VAA
3.7
⑬ HBLK
0.2
⑫ CLP2
0.7
⑪ CLP1
0.8
⑩ SP2
1.3
⑨ SH1
1.3
⑧ SH2
0.8
⑦ SP1
1.4
⑥ SHD
1.4
⑤ SHP
2
④ XDL1
2
③ XDL2
0.2
② CLP3
3
① ID

- ⊗ : mark is slew hole.
- ○— : lead wire attached to the component side.
- ●— : lead wire attached to the pattern side.
- ▨ : pattern from the side which enables seeing.
- ░ : pattern of the rear side.
- ■ : B+ pattern.
- ▨ : printing resistance.
- The voltage value is all recording mode of operation.



SIDE B
SIDE A

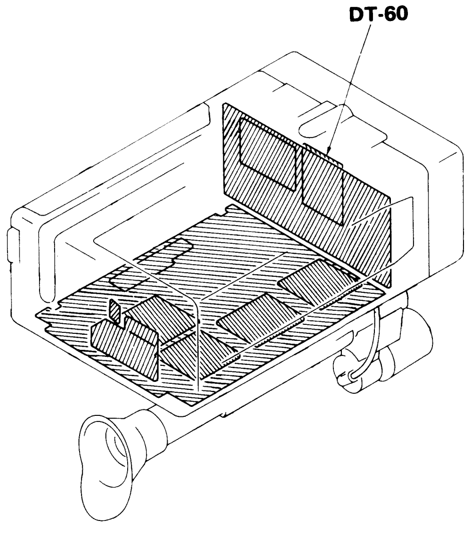
Note

Soldering side: Parts on the soldering side being seen from the soldering are stated.

Component side: Parts on the component side being seen from the component are stated.

Regarding color indication of patterns

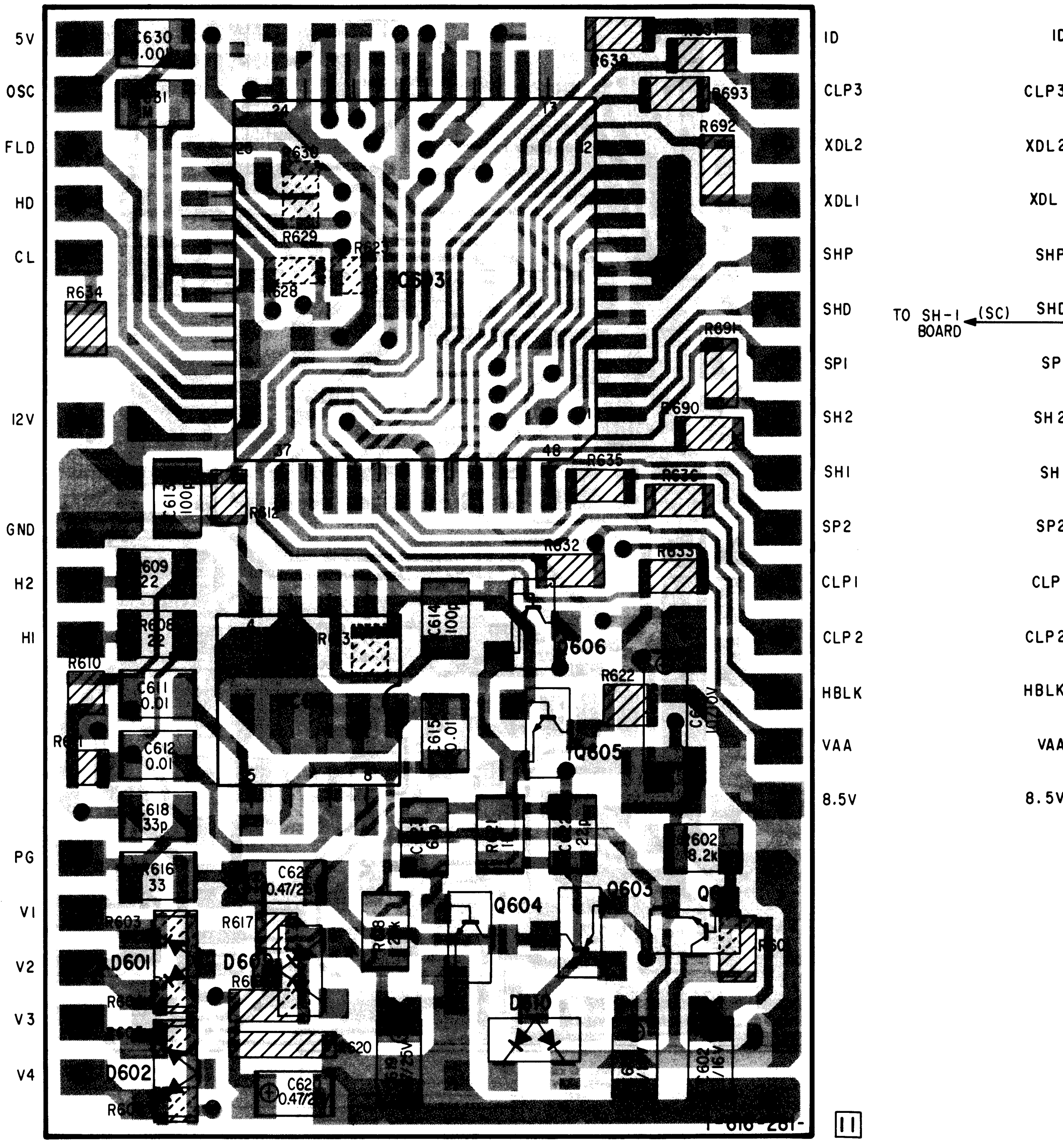
- * Patterns being seen in the state from the surface side are indicated in gray pattern and red pattern (B+ pattern).
- * Pattern being seen in the state of the rear surface side is indicated in green pattern.



DT-60 (CCD DRIVE, TIMING GENERATOR) PRINTED WIRING BOARD

	1	2	3	4	5	6	7
Q, IC			IC603 IC601	606 605 604 603	601		
D		601 602	609	610			

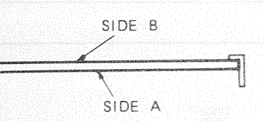
DT-60 BOARD (SIDE A)



A
B
C
D
E
F
G
H
I
J
5V
OSC
FLD
HD
CL
12V
GND
H2
H1
PG
V1
V2
V3
V4
ID
CLP3
XDL2
XDL1
SHP
SHD
SP1
SH2
SH1
SP2
CLP1
CLP2
HBLK
VAA
8.5V
TO SH-1 BOARD
(SC)
IC603
C630 0.001
C651
C613 100p
R612
C609 22
R608 22
R610
C611 0.01
C612 0.01
C618 33p
C616 33
R603
D601
D602
R617
C621 0.47/25
C620
C614 100p
C615 0.01
R634
R629
R628
R638
R693
R692
R691
R690
R635
R636
R632
R633
R622
Q606
Q605
Q604
Q603
R602 8.2k
D610
24
37
48
1

DT-60 (CCD DRIVE, TIMING GENERATOR) PRINTED WIRING BOARD

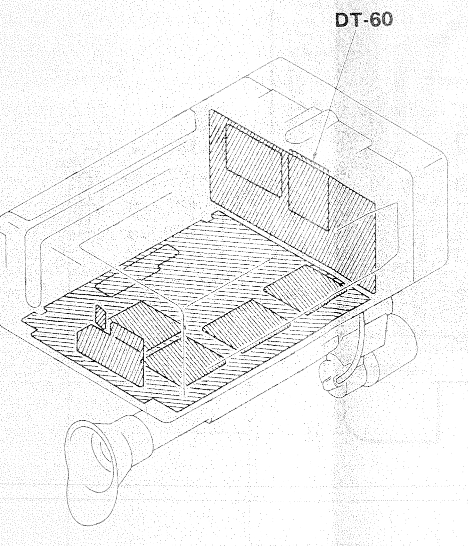
: mark is slew hole.
: lead wire attached to the component side.
: lead wire attached to the pattern side.
: pattern from the side which enables seeing.
: pattern of the rear side.
: B+ pattern.
: printing resistance.
voltage value is all recording mode of operation.


SIDE B
SIDE A

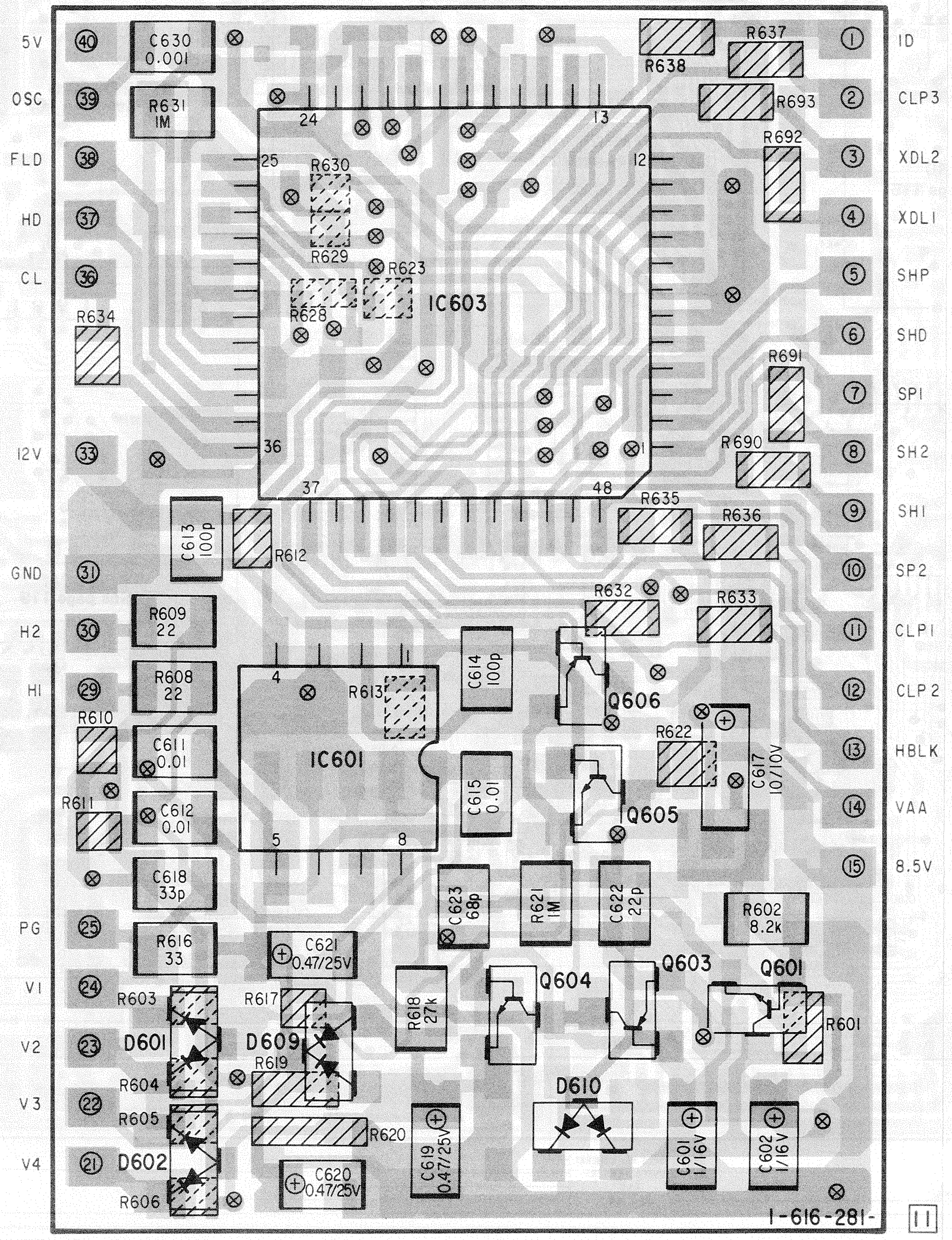
ering side:	Parts on the soldering side being seen from the soldering are stated.
ponent side:	Parts on the component side being seen from the component are stated.

rding color indication of patterns
atterns being seen in the state from the surface de are indicated in gray pattern and red pattern + pattern).
attern being seen in the state of the rear surface de is indicated in green pattern.

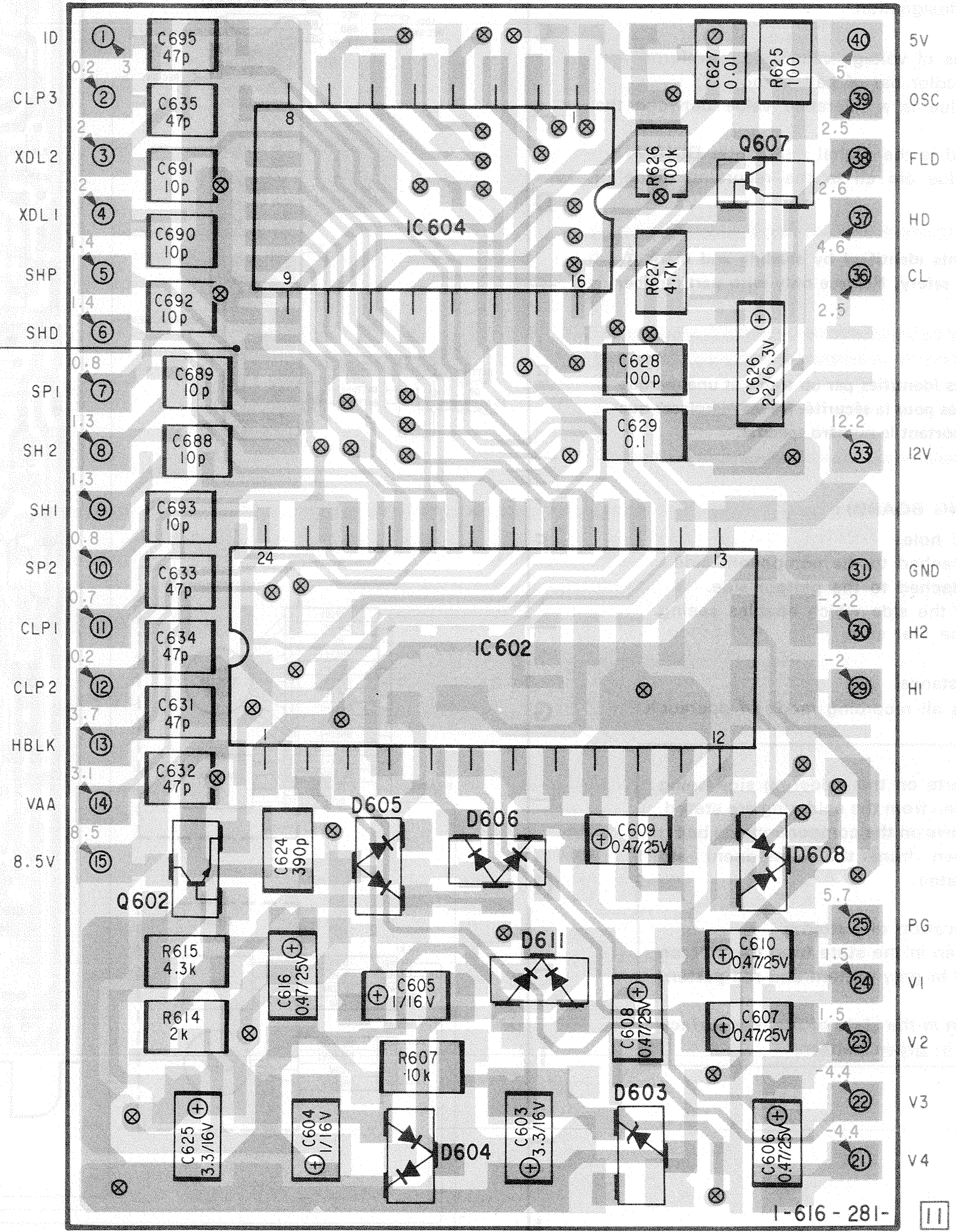
	1	2	3	4	5	6	7	8	9	10	11	12	13
Q, IC			IC603 IC601	606 605 604 603	601			602		IC604 IC602		607	
D		601 602	609	610					605	606 611 604	603	608	



DT-60 BOARD (SIDE A)


5V
OSC
FLD
HD
CL
12V
GND
H2
H1
PG
V1
V2
V3
V4
ID
CLP3
XDL2
XDL1
SHP
SHD
SPI
SH2
SH1
SP2
CLP1
CLP2
HBLK
VAA
8.5V
IC603
IC601
Q606
Q605
Q604
Q603
Q601
D601
D602
D609
D610
C630 0.001
R631 1M
R637
R638
R693
R692
R630
R629
R623
R628
R634
R691
R690
R635
R636
C613 100p
R612
R632
R633
R609 22
R608 22
R610
C611 0.01
R611
C612 0.01
C618 33p
R616 33
C614 100p
R613
C615 0.01
R622
C617 10/10V
C623 68p
R621 1M
C622 22p
R602 8.2k
C621 0.47/25V
R618 27k
R603
R617
R619
R604
R605
R606
R620
C620 0.47/25V
C619 0.47/25V
C601 1/16V
C602 1/16V
R601
1-616-281-11

DT-60 BOARD (SIDE B)

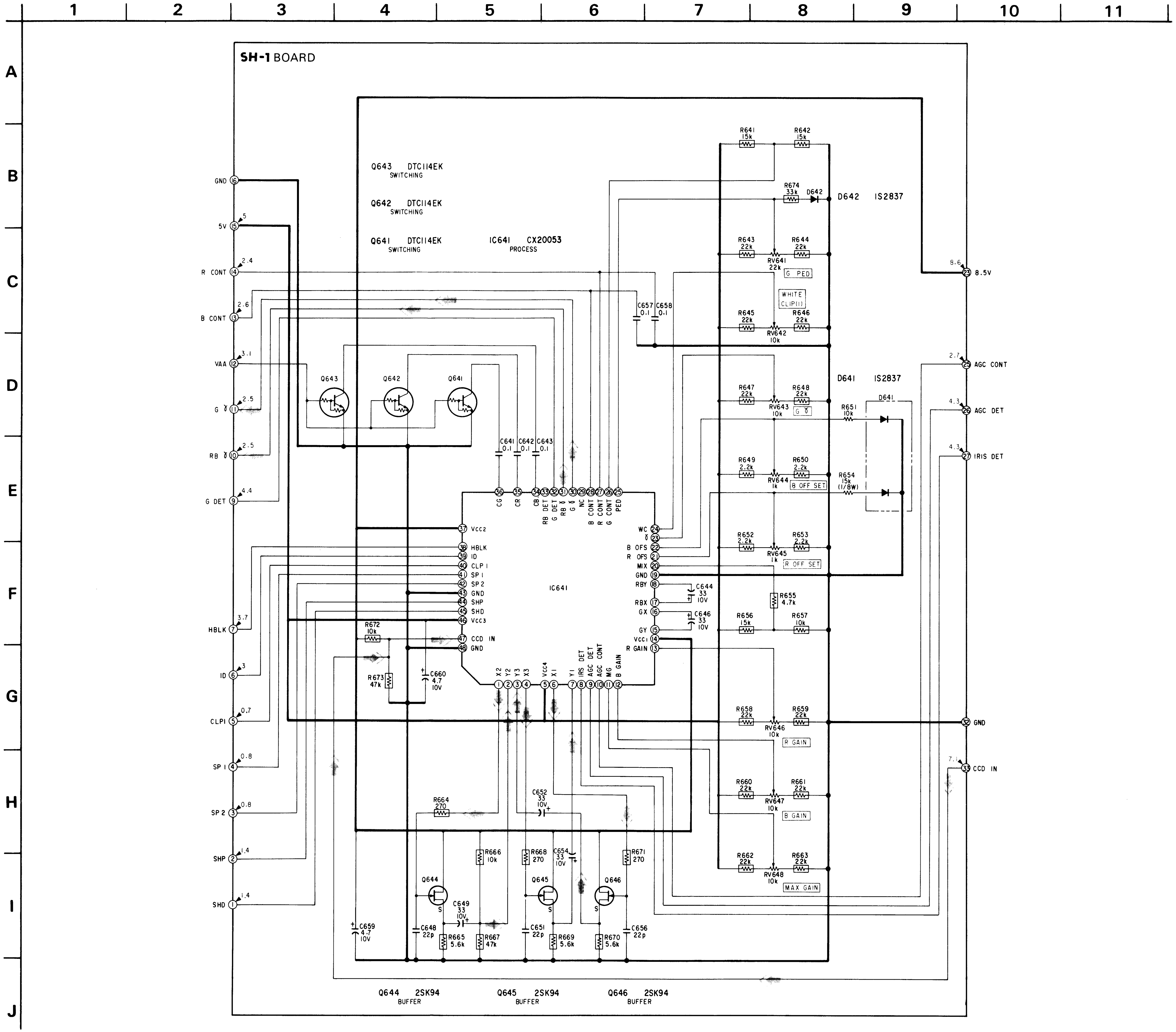

ID
CLP3
XDL2
XDL1
SHP
SHD
SPI
SH2
SH1
SP2
CLP1
CLP2
HBLK
VAA
8.5V
TO SH-1 BOARD (SC)
5V
OSC
FLD
HD
CL
12V
GND
H2
H1
PG
V1
V2
V3
V4
IC604
IC602
Q607
Q602
D605
D606
D608
D611
D603
D604
C695 47p
C635 47p
C691 10p
C690 10p
C692 10p
C689 10p
C688 10p
C693 10p
C633 47p
C634 47p
C631 47p
C632 47p
C627 0.01
R625 100
R626 100k
R627 4.7k
C628 100p
C626 22/6.3V
C629 0.1
C624 390p
C609 0.47/25V
R615 4.3k
C616 0.47/25V
C605 1/16V
R614 2k
R607 10k
C608 0.47/25V
C610 0.47/25V
C607 0.47/25V
C625 3.3/16V
C604 1/16V
C603 3.3/16V
C606 0.47/25V
0.2
2
1.4
0.8
1.3
3.7
3.1
8.5
5
2.5
2.6
4.6
12.2
-2.2
-2
5.7
1.5
-4.4
1-616-281-11

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all µF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- -w- : printing resistor.
- ☐ : panel designation.
- ☐ : adjustment designation.
- ▬ : B+ line.
- Measuring conditions of voltage value and waveform
  (1) The subject is color bar of pattern box.
  (2) The voltage value is a reference value between the grounding.
  (The tester used is the digital multimeter DC10MΩ)
  (3) The voltage value are all in the recording mode of operation.

Signal path

➪ : REC Y/C Signal

SH-1 (PROCESS) SCHEMATIC DIAGRAM

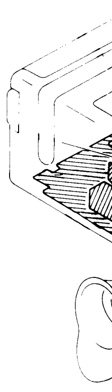

1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
SH-1 BOARD
Q643 DTC114EK SWITCHING
Q642 DTC114EK SWITCHING
Q641 DTC114EK SWITCHING
IC641 CX20053 PROCESS
D642 1S2837
D641 1S2837
GND ⑯
5V ⑮
R CONT ⑭
B CONT ⑬
VAA ⑫
G ⑪
RB ⑩
G DET ⑨
HBLK ⑦
ID ⑥
CLPI ⑤
SP1 ④
SP2 ③
SHP ②
SHD ①
8.5V
AGC CONT
AGC DET
IRIS DET
GND
CCD IN
G PED
WHITE CLIP(1)
G
B OFF SET
R OFF SET
R GAIN
B GAIN
MAX GAIN
IC641
Q644 2SK94 BUFFER
Q645 2SK94 BUFFER
Q646 2SK94 BUFFER

- ⊗ : mark
- ○— : lead
- ●— : lead
- ▨ : patte
- patte
- B+
- ▨ : print
- The voltage
- Digital transi
  Refer to the

Note
Soldering sid

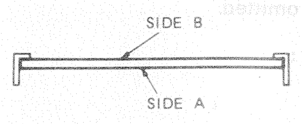
Component s

Regarding co
* Patterns b
side are in
(B+ patte
* Pattern be
side is ind



SH-1 (PROCESS) PRINTED WIRING BOARD

- ⊗ : mark is slew hole.
- ○— : lead wire attached to the component side.
- ●— : lead wire attached to the pattern side.
- ▩ : pattern from the side which enables seeing.
- ▩ : pattern of the rear side.
- ▩ : B+ pattern.
- ▨ : printing resistance.
- The voltage value is all recording mode of operation.
- Digital transistor (SH-1: Q641, 642, 643) transistor with resistors. Refer to the SH-1 board schematic diagram for digital transistor.


SIDE B
SIDE A

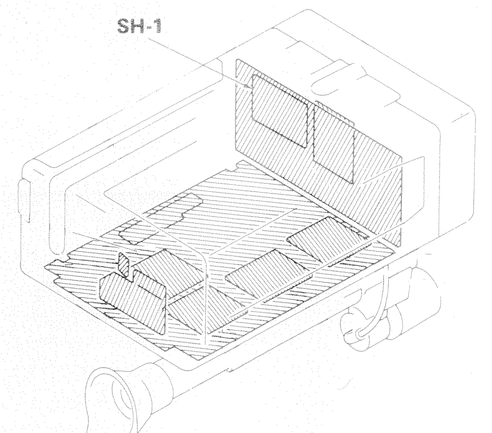
Note

Soldering side: Parts on the soldering side being seen from the soldering are stated.

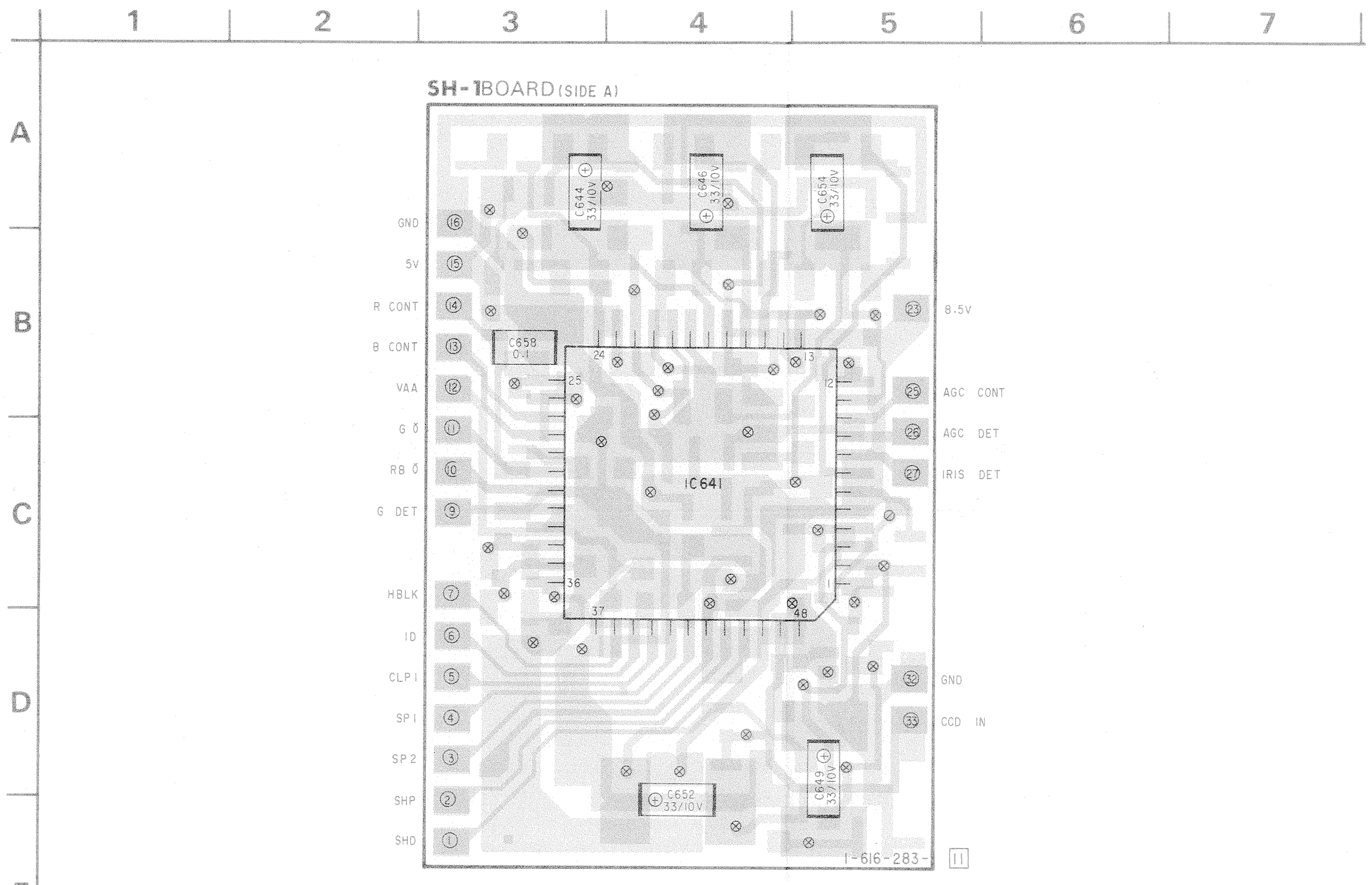
Component side: Parts on the component side being seen from the component are stated.

Regarding color indication of patterns

- * Patterns being seen in the state from the surface side are indicated in gray pattern and red pattern (B+ pattern).
- * Pattern being seen in the state of the rear surface side is indicated in green pattern.

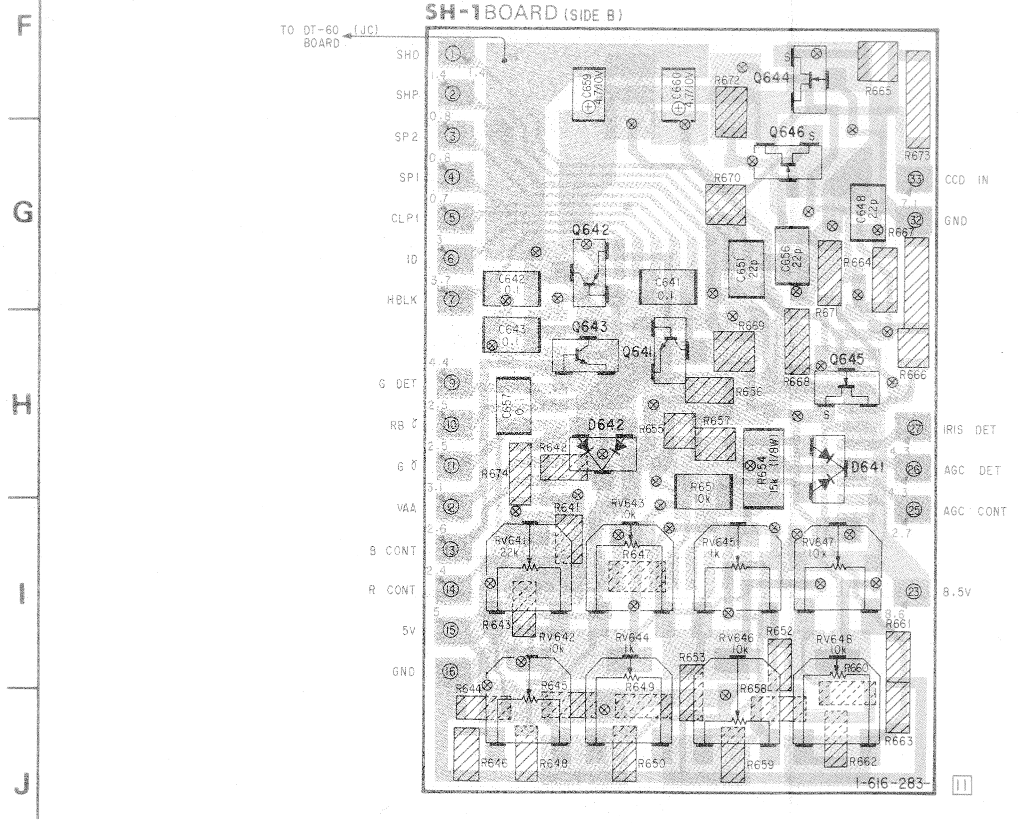


SH-1BOARD (SIDE A)


1
2
3
4
5
6
7
A
B
C
D
E
GND
5V
R CONT
B CONT
VAA
G Ŏ
RB Ŏ
G DET
HBLK
ID
CLP1
SP1
SP2
SHP
SHD
C644 33/10V
C646 33/10V
C654 33/10V
C658 0.1
IC641
24
13
25
12
36
1
37
48
8.5V
AGC CONT
AGC DET
IRIS DET
GND
CCD IN
C652 33/10V
C649 33/10V
1-616-283-
11

Q·IC		642 643		IC641 641		644 646		645	Q·IC
D		642					641		D
ADJ	RV641 RV642		RV643 RV644		RV645 RV646		RV647 RV648		ADJ

SH-1BOARD (SIDE B)


F
G
H
I
J
TO DT-60 (JC) BOARD
SHD
SHP
SP2
SP1
CLP1
ID
HBLK
G DET
RB Ŏ
G Ŏ
VAA
B CONT
R CONT
5V
GND
1.4
1.4
0.8
0.8
0.7
3
3.7
4.4
2.5
2.5
3.1
2.6
2.4
5
C659 4.7/10V
C660 4.7/10V
R672
Q644
R665
Q646
R673
R670
CCD IN
GND
C648 22p
R667
Q642
C642 0.1
C641 0.1
C651 22p
C656 22p
R664
R671
C643 0.1
Q643
Q641
R669
R668
Q645
R666
R656
C657 0.1
D642
R655
R657
R642
R674
R654 15k (1/8W)
D641
R651 10k
IRIS DET
AGC DET
AGC CONT
4.3
4.3
2.7
RV643 10k
R641
RV641 22k
R647
RV645 1k
RV647 10k
8.5V
8.6
R643
RV642 10k
RV644 1k
RV646 10k
R652
RV648 10k
R661
R653
R644
R645
R649
R658
R660
R646
R648
R650
R659
R662
R663
1-616-283-
11

- Caution to be exercised when replacing chip components
  Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all μF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.

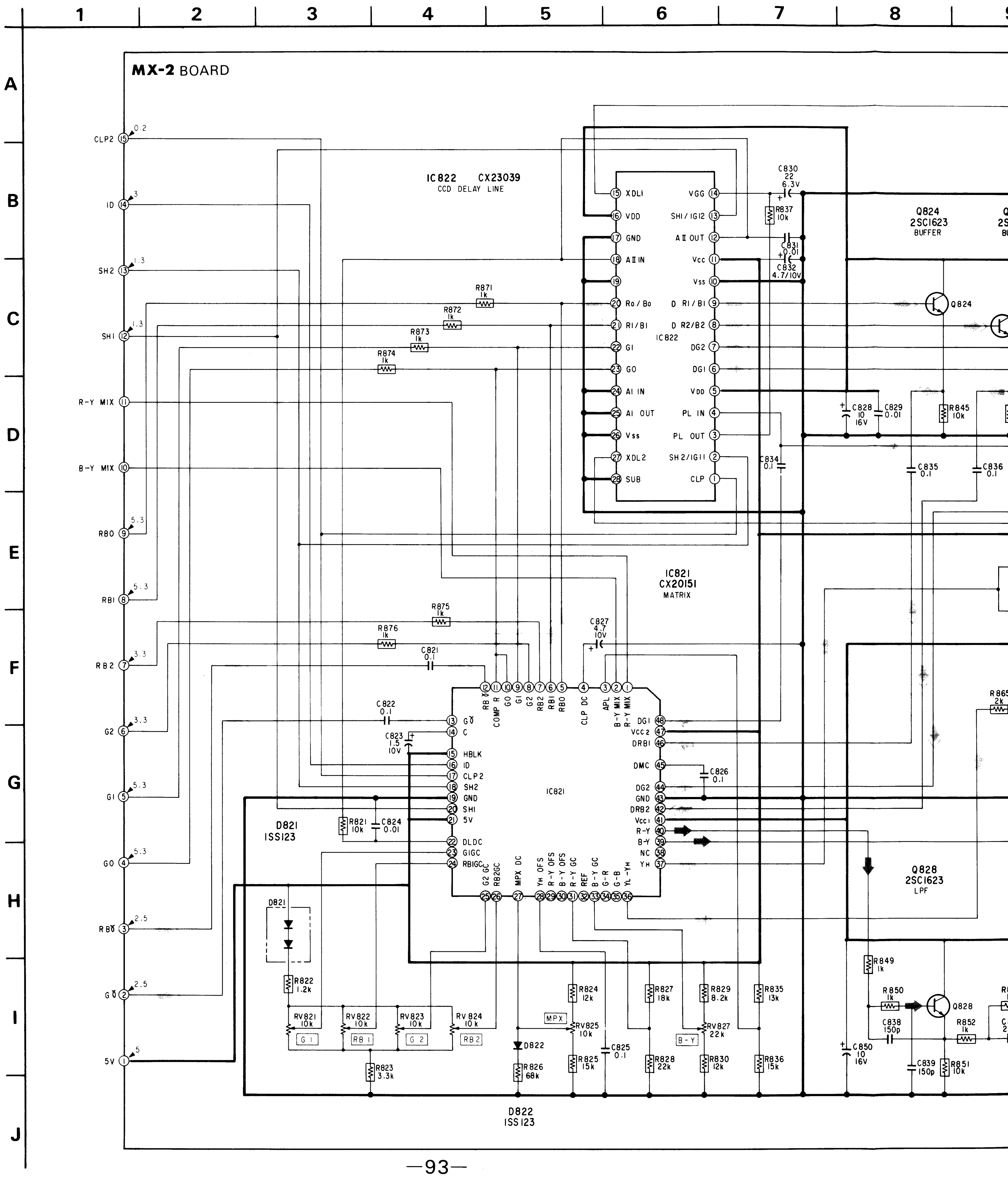
Note (SCHEMATIC DIAGRAM) :

- ─⊡─ : printing resistor.
- ▭ : panel designation.
- ▭ : adjustment designation.
- ▬ : B+ line.
- Measuring conditions of voltage value and waveform
  (1) The subject is color bar of pattern box.
  (2) The voltage value is a reference value between the grounding.
  (The tester used is the digital multimeter DC10MΩ)
  (3) The voltage value are all in the recording mode of operation.

Signal path

⇨ : REC Y/C Signal
⇨ : REC Y Signal
➡ : REC C Signal

MX-2 (MATRIX) SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
MX-2 BOARD
CLP2 ⑮ 0.2
ID ⑭ 3
SH2 ⑬ 1.3
SH1 ⑫ 1.3
R-Y MIX ⑪
B-Y MIX ⑩
RB0 ⑨ 5.3
RB1 ⑧ 5.3
RB2 ⑦ 3.3
G2 ⑥ 3.3
G1 ⑤ 5.3
G0 ④ 5.3
RB0 ③ 2.5
G0 ② 2.5
5V ① 5
IC822 CX23039
CCD DELAY LINE
XDL1
VDD
GND
AII IN
Ro / Bo
R1/B1
G1
G0
A1 IN
A1 OUT
Vss
XDL2
SUB
VGG
SH1/IG12
AII OUT
Vcc
Vss
D R1/B1
D R2/B2
DG2
DG1
VDD
PL IN
PL OUT
SH2/IG11
CLP
IC822
C830 22 6.3V
R837 10k
C831 0.01
C832 4.7/10V
C834 0.1
R871 1k
R872 1k
R873 1k
R874 1k
Q824 2SC1623 BUFFER
Q824
C828 10 16V
C829 0.01
R845 10k
C835 0.1
C836 0.1
IC821 CX20151 MATRIX
R875 1k
R876 1k
C821 0.1
C827 4.7 10V
C822 0.1
C823 1.5 10V
RB X COMP R
G0
G1
G2
RB2
RB1
RB0
CLP DC
APL
B-Y MIX
R-Y MIX
G0
C
HBLK
ID
CLP2
SH2
GND
SH1
5V
DLDC
G1GC
RB1GC
IC821
DG1
Vcc2
DRB1
DMC
DG2
GND
DRB2
Vcc1
R-Y
B-Y
NC
YH
C826 0.1
G2 GC
RB2GC
MPX DC
YH OFS
R-Y OFS
B-Y OFS
R-Y GC
REF
B-Y GC
G-R
G-B
YL-YH
D821 1SS123
D821
R821 10k
C824 0.01
R822 1.2k
RV821 10k
RV822 10k
RV823 10k
RV824 10k
G1
RB1
G2
RB2
R823 3.3k
MPX
D822
R826 68k
R824 12k
RV825 10k
R825 15k
C825 0.1
R827 18k
R828 22k
R829 8.2k
RV827 22k
B-Y
R830 12k
R835 13k
R836 15k
D822 1SS123
Q828 2SC1623 LPF
R849 1k
R850 1k
C838 150p
Q828
R852 1k
C839 150p
R851 10k
C850 10 16V
R865 2k

ip components
but use new

of the tantalum

or less are not
s. The unit is all

ance; 1/32W in

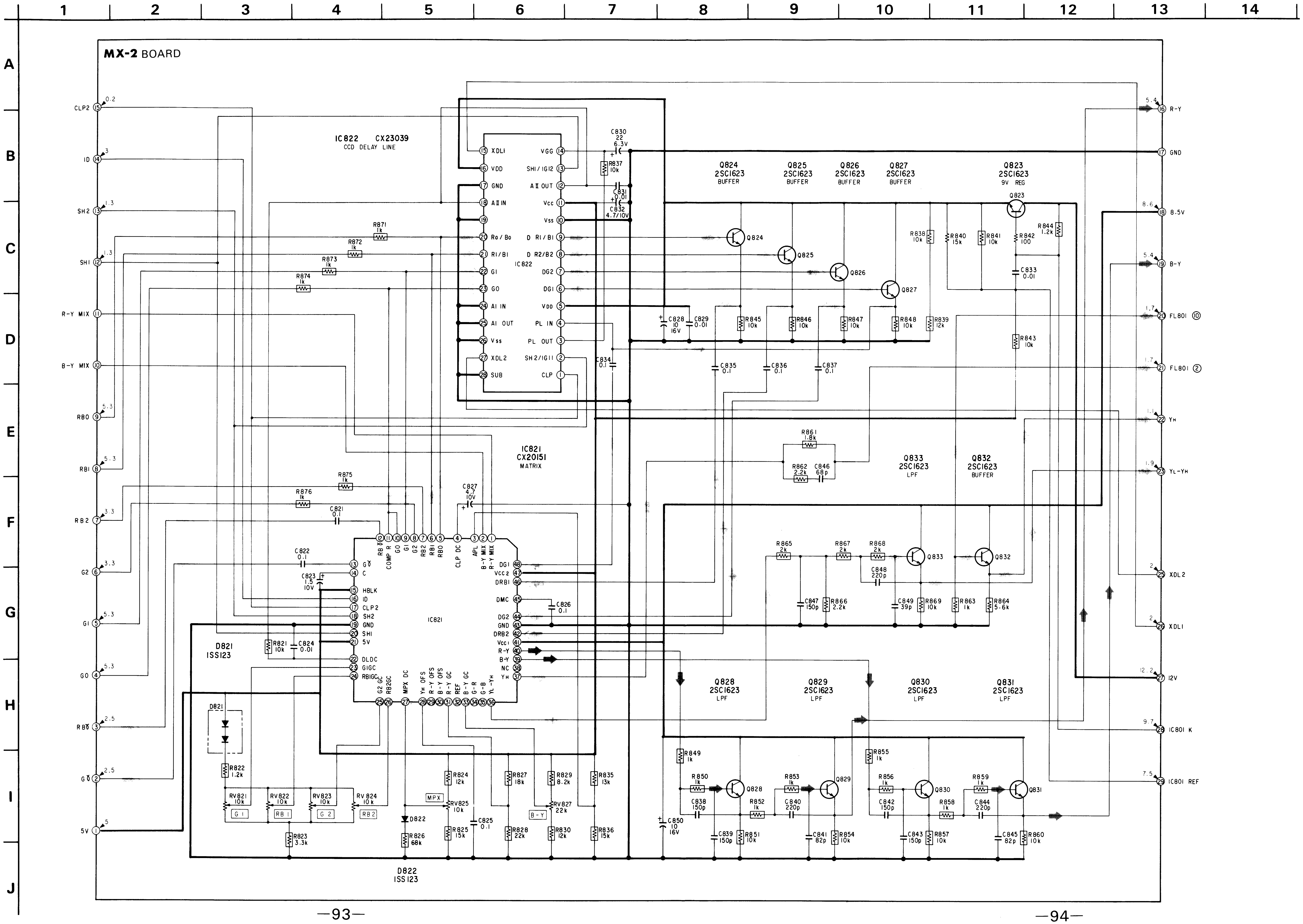
characteristics

waveform

e between the

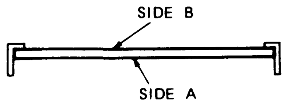
er DC10MΩ)
rding mode of

MX-2 (MATRIX) SCHEMATIC DIAGRAM


1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J
MX-2 BOARD
IC822 CX23039
CCD DELAY LINE
IC821 CX20151
MATRIX
CLP2 ⑮
ID ⑭
SH2 ⑬
SH1 ⑫
R-Y MIX ⑪
B-Y MIX ⑩
RB0 ⑨
RB1 ⑧
RB2 ⑦
G2 ⑥
G1 ⑤
G0 ④
RB0̄ ③
G0̄ ②
5V ①
XDL1
VDD
GND
AII IN
Ro/Bo
R1/B1
G1
G0
AI IN
AI OUT
Vss
XDL2
SUB
VGG
SH1/IG12
AII OUT
Vcc
Vss
D R1/B1
D R2/B2
DG2
DG1
VDD
PL IN
PL OUT
SH2/IG11
CLP
C830 22 6.3V
R837 10k
C831 0.01
C832 4.7/10V
R871 1k
R872 1k
R873 1k
R874 1k
Q824 2SC1623 BUFFER
Q825 2SC1623 BUFFER
Q826 2SC1623 BUFFER
Q827 2SC1623 BUFFER
Q823 2SC1623 9V REG
R838 10k
R840 15k
R841 10k
R842 100
R844 1.2k
C833 0.01
C828 10 16V
C829 0.01
R845 10k
R846 10k
R847 10k
R848 10k
R839 12k
R843 10k
C834 0.1
C835 0.1
C836 0.1
C837 0.1
R861 1.8k
R862 2.2k
C846 68p
Q833 2SC1623 LPF
Q832 2SC1623 BUFFER
R875 1k
R876 1k
C827 4.7 10V
C821 0.1
C822 0.1
C823 1.5 10V
COMP R G0 G1 G2 RB2 RB1 RB0 CLP DC APL B-Y MIX R-Y MIX
DG1 VCC2 DRB1 DMC DG2 GND DRB2 VCC1 R-Y B-Y NC YH
G0̄ C HBLK ID CLP2 SH2 GND SH1 5V DLDC G1GC RB1GC
G2 GC RB2GC MPX DC YH OFS R-Y OFS B-Y OFS R-Y GC REF B-Y GC G-R G-B YL-YH
C826 0.1
IC821
R865 2k
R867 2k
R868 2k
C848 220p
C847 150p
R866 2.2k
C849 39p
R869 10k
R863 1k
R864 5.6k
D821 1SS123
R821 10k
C824 0.01
Q828 2SC1623 LPF
Q829 2SC1623 LPF
Q830 2SC1623 LPF
Q831 2SC1623 LPF
R822 1.2k
RV821 10k
RV822 10k
RV823 10k
RV824 10k
G1 RB1 G2 RB2
R823 3.3k
D822
R826 68k
D822 1SS123
R824 12k
MPX
RV825 10k
R825 15k
C825 0.1
R827 18k
R828 22k
R829 8.2k
RV827 22k
B-Y
R830 12k
R835 13k
R836 15k
R849 1k
R850 1k
C838 150p
R852 1k
R853 1k
C840 220p
C839 150p
R851 10k
C841 82p
R854 10k
C850 10 16V
R855 1k
R856 1k
C842 150p
R858 1k
R859 1k
C844 220p
C843 150p
R857 10k
C845 82p
R860 10k
5.4 ⑯ R-Y
⑰ GND
8.6 ⑱ 8.5V
5.4 ⑲ B-Y
1.7 ⑳ FL801 ⑩
1.7 ㉑ FL801 ②
1.1 ㉒ YH
1.9 ㉓ YL-YH
2 ㉕ XDL2
2 ㉖ XDL1
12.2 ㉗ 12V
9.7 ㉘ IC801 K
7.5 ㉙ IC801 REF
0.2 3 1.3 1.3 5.3 5.3 3.3 3.3 5.3 5.3 2.5 2.5 5

MX-2 (MATRIX) PRINTED WIRING BOARD

- ⊗ : mark is slew hole.
- ○— : lead wire attached to the component side.
- ●— : lead wire attached to the pattern side.
- ▨ : pattern from the side which enables seeing.
- ░ : B+ pattern.
- ▨ : printing resistance.
- The voltage value is all recording mode of operation.


SIDE B
SIDE A

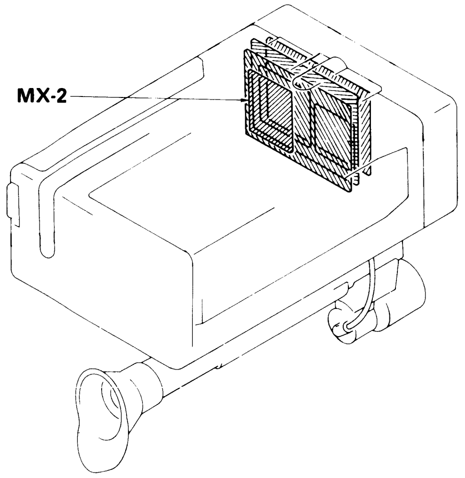
Note

Soldering side: Parts on the soldering side being seen from the soldering are stated.

Component side: Parts on the component side being seen from the component are stated.

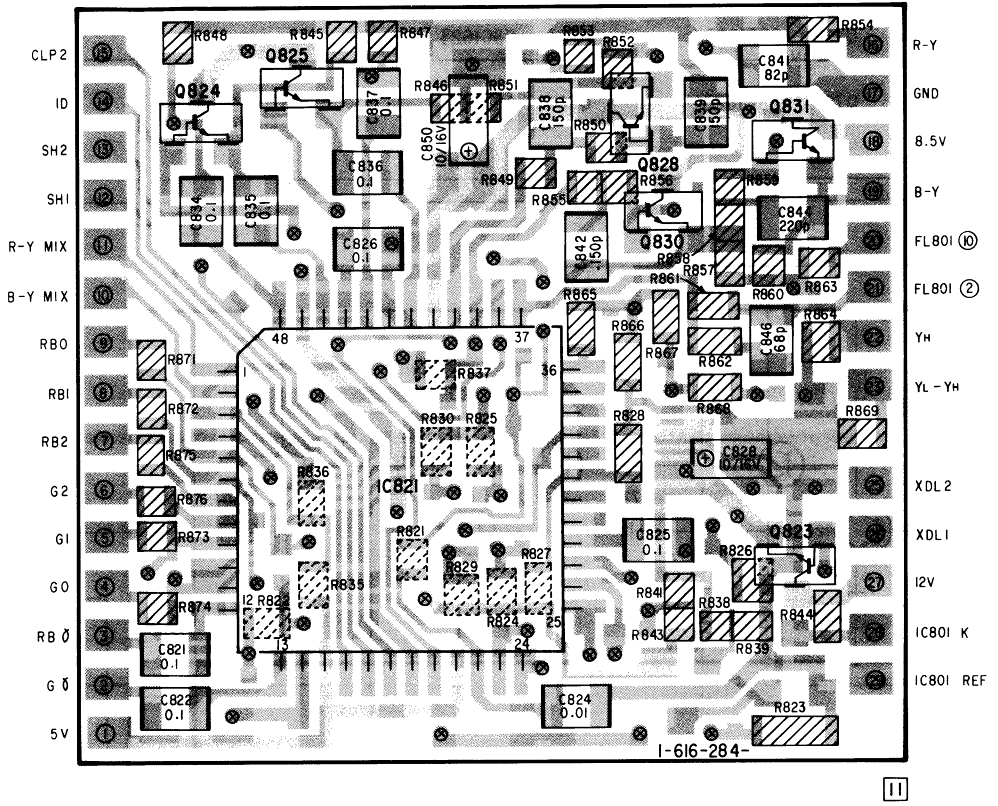
Regarding color indication of patterns

- * Patterns being seen in the state from the surface side are indicated in gray pattern and red pattern (B+ pattern).
- * Pattern being seen in the state of the rear surface side is indicated in green pattern.

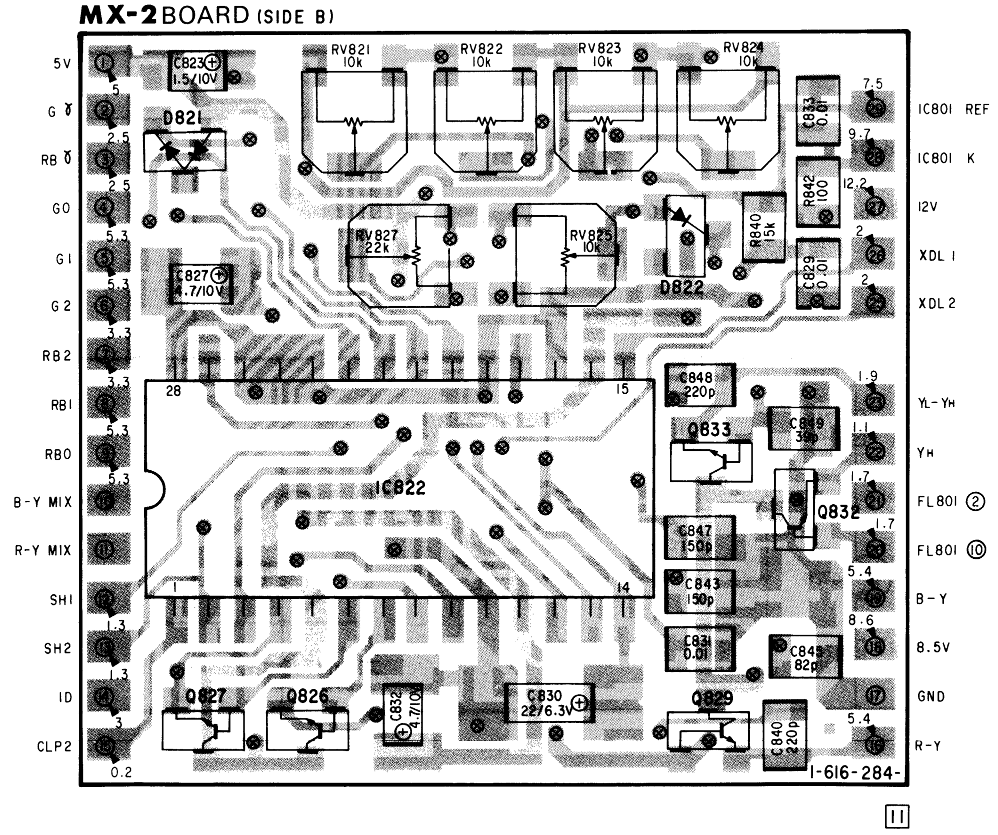


Q , IC	D	ADJ
825		
824 828		
831		
830		
IC821		
823		
		RV821 RV823 RV822 RV824
	821	
	822	RV827 RV825
833		
IC822 832		
827 826 829		
Q , IC	D	ADJ

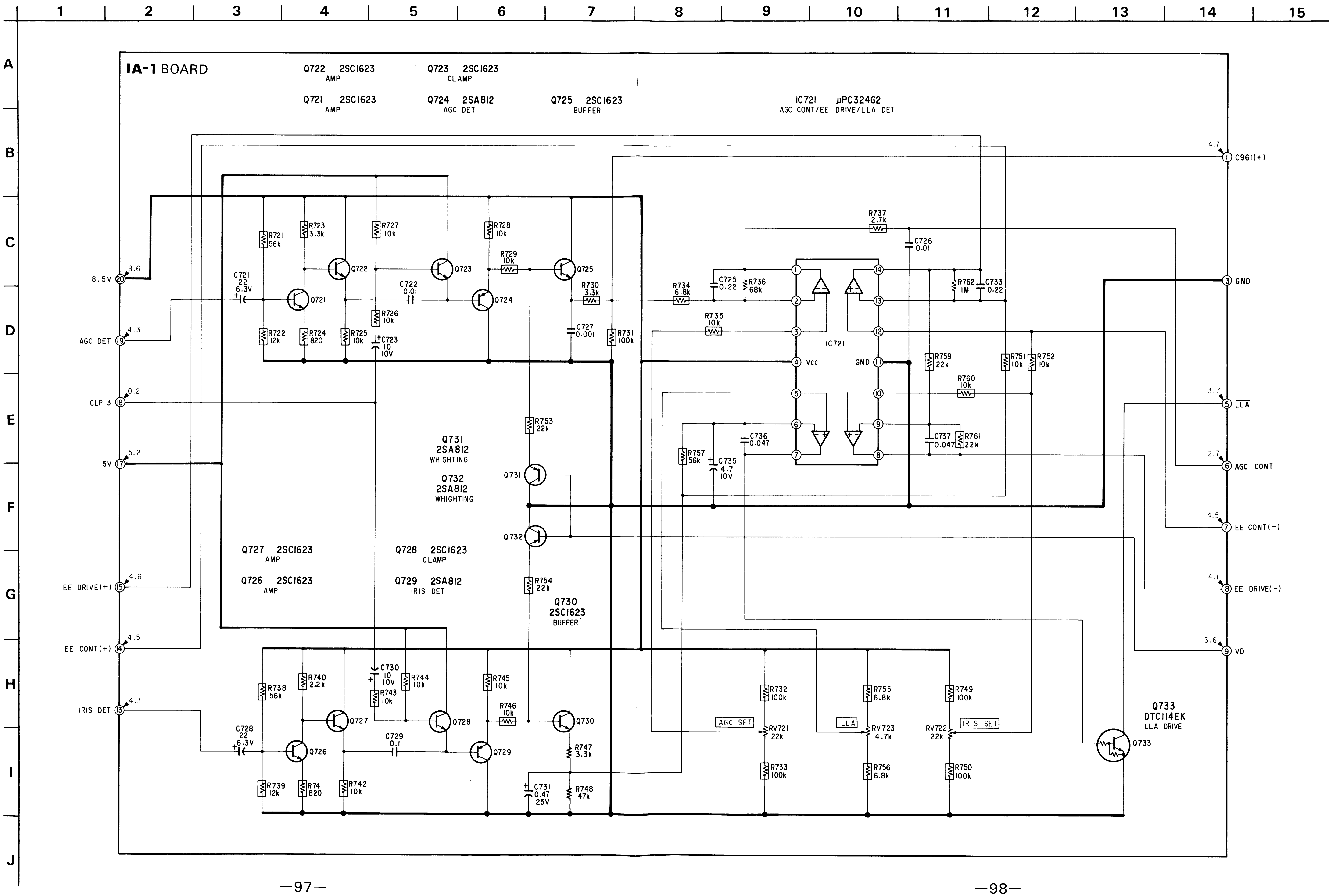
MX-2 BOARD (SIDE A)


CLP2
ID
SH2
SH1
R-Y MIX
B-Y MIX
RBO
RBI
RB2
G2
G1
GO
RB Ծ
G Ծ
5V
R-Y
GND
8.5V
B-Y
FL801 ⑩
FL801 ②
YH
YL-YH
XDL2
XDL1
12V
IC801 K
IC801 REF
Q824
Q825
Q828
Q830
Q831
Q823
IC821
R848 R845 R847 R853 R852 R854
R846 R851 R850 R849 R855 R856 R859
R858 R857 R861 R860 R863 R864 R865 R866 R867 R862 R868 R869
R871 R872 R875 R876 R873 R874
R837 R830 R825 R828 R836 R821 R829 R827 R822 R835 R824
R826 R841 R843 R838 R839 R844 R823
C841 82p
C838 150p
C837 0.1
C850 10/16V
C836 0.1
C839 150p
C834 0.1
C835 0.1
C826 0.1
C842 150p
C844 220p
C846 68p
C828 10/16V
C825 0.1
C821 0.1
C822 0.1
C824 0.01
1-616-284-
11

MX-2 BOARD (SIDE B)


5V
G Ծ
RB Ծ
GO
G1
G2
RB2
RB1
RBO
B-Y MIX
R-Y MIX
SH1
SH2
ID
CLP2
IC801 REF
IC801 K
12V
XDL1
XDL2
YL-YH
YH
FL801 ②
FL801 ⑩
B-Y
8.5V
GND
R-Y
RV821 10k
RV822 10k
RV823 10k
RV824 10k
RV827 22k
RV825 10k
C823 1.5/10V
D821
D822
C827 4.7/10V
C833 0.01
R842 100
R840 15k
C829 0.01
IC822
C848 220p
Q833
C849 33p
Q832
C847 150p
C843 150p
C831 0.01
C845 82p
Q827
Q826
C832 4.7/10
C830 22/6.3V
Q829
C840 220p
28 15 1 14
5 2.5 2.5 5.3 5.3 3.3 3.3 5.3 5.3 1.3 1.3 3 0.2
7.5 9.7 12.2 2 2 1.9 1.1 1.7 1.7 5.4 8.6 5.4
1-616-284-
11

IA-1 (IRIS DETECTION AGC CONTROL) SCHEMATIC DIAGRAM


1
2
3
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5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
IA-1 BOARD
Q722 2SC1623 AMP
Q723 2SC1623 CLAMP
Q721 2SC1623 AMP
Q724 2SA812 AGC DET
Q725 2SC1623 BUFFER
IC721 μPC324G2 AGC CONT/EE DRIVE/LLA DET
Q731 2SA812 WHIGHTING
Q732 2SA812 WHIGHTING
Q727 2SC1623 AMP
Q728 2SC1623 CLAMP
Q726 2SC1623 AMP
Q729 2SA812 IRIS DET
Q730 2SC1623 BUFFER
Q733 DTC114EK LLA DRIVE
8.5V ⑳ 8.6
AGC DET ⑲ 4.3
CLP 3 ⑱ 0.2
5V ⑰ 5.2
EE DRIVE(+) ⑮ 4.6
EE CONT(+) ⑭ 4.5
IRIS DET ⑬ 4.3
4.7 ① C961(+)
③ GND
3.7 ⑤ LLA
2.7 ⑥ AGC CONT
4.5 ⑦ EE CONT(−)
4.1 ⑧ EE DRIVE(−)
3.6 ⑨ VD
R721 56k
R722 12k
R723 3.3k
R724 820
R725 10k
R726 10k
R727 10k
R728 10k
R729 10k
R730 3.3k
R731 100k
R734 6.8k
R735 10k
R736 68k
R737 2.7k
R738 56k
R739 12k
R740 2.2k
R741 820
R742 10k
R743 10k
R744 10k
R745 10k
R746 10k
R747 3.3k
R748 47k
R749 100k
R750 100k
R751 10k
R752 10k
R753 22k
R754 22k
R755 6.8k
R756 6.8k
R757 56k
R759 22k
R760 10k
R761 22k
R762 1M
R732 100k
R733 100k
RV721 22k
RV722 22k
RV723 4.7k
AGC SET
LLA
IRIS SET
C721 22 6.3V
C722 0.01
C723 10 10V
C725 0.22
C726 0.01
C727 0.001
C728 22 6.3V
C729 0.1
C730 10 10V
C731 0.47 25V
C733 0.22
C735 4.7 10V
C736 0.047
C737 0.047
IC721
Vcc
GND

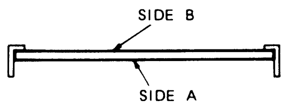
- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all μF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.

Note (SCHEMATIC DIAGRAM) :

- ⊟ : printing resistor.
- ☐ : panel designation.
- ☐ : adjustment designation.
- ▬ : B+ line.
- Measuring conditions of voltage value and waveform
  - (1) The subject is color bar of pattern box.
  - (2) The voltage value is a reference value between the grounding.
    (The tester used is the digital multimeter DC10MΩ)
  - (3) The voltage value are all in the recording mode of operation.

Note (PRINTED WIRING BOARD) :

- ⊗ : mark is slew hole.
- ○— : lead wire attached to the component side.
- ●— : lead wire attached to the pattern side.
- ▒ : pattern from the side which enables seeing.
- ░ : pattern of the rear side.
- ░ : B+ pattern.
- ▨ : printing resistance.
- The voltage value is all recording mode of operation.
- Digital transistor (IA-1 : Q733)transistor with resistor.
  Refer to the IA-1 board schematic diagram for digital transistor.

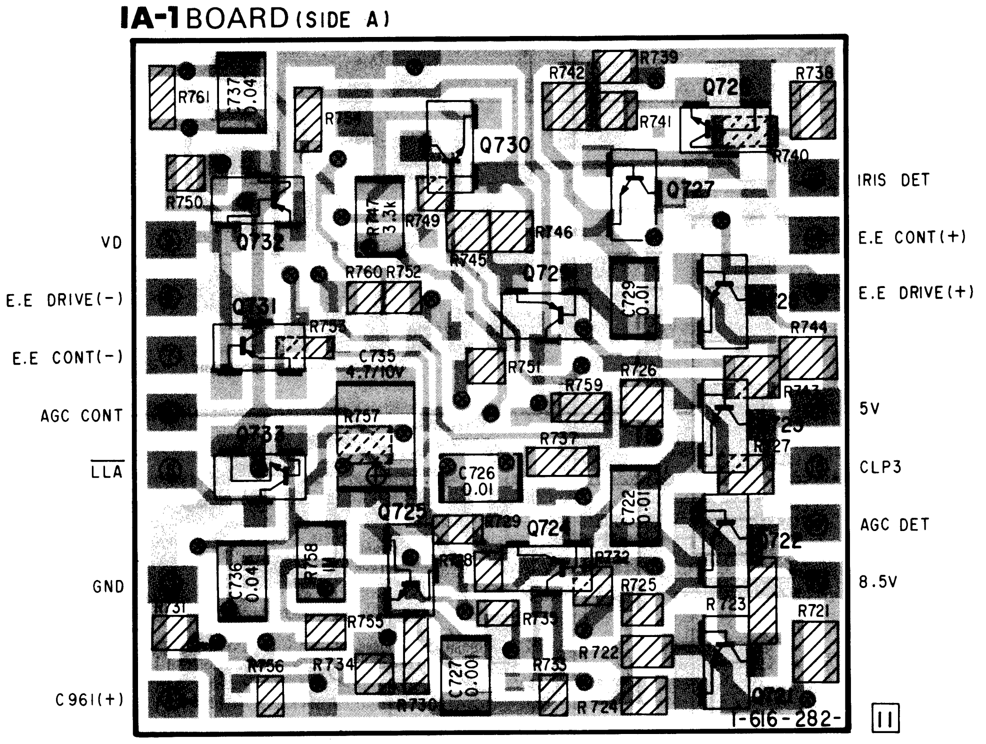

SIDE B
SIDE A

Note
Soldering side: Parts on the soldering side being seen from the soldering are stated.
Component side: Parts on the component side being seen from the component are stated.

Regarding color indication of patterns
- * **Patterns being seen in the state from the surface side are indicated in gray pattern and red pattern (B+ pattern).**
- * **Pattern being seen in the state of the rear surface side is indicated in green pattern.**

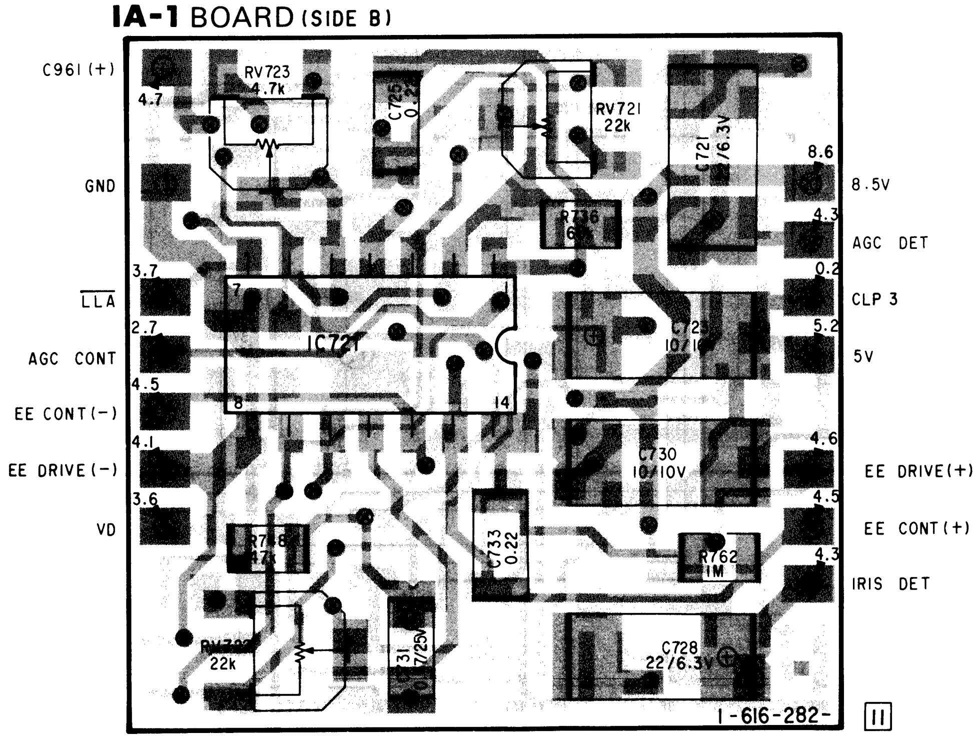
IA-1 (IRIS DETECTION AGC CONTROL) PRINTED WIRING BOARD

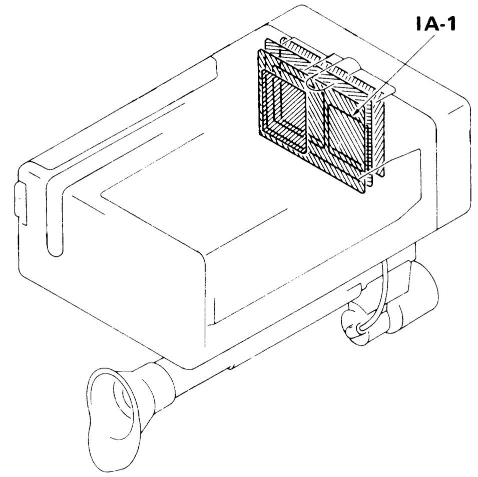
IA-1 BOARD (SIDE A)


1 2 3 4 5 6 7 8 9 10 11
A B C D E F G H I J
VD
E.E DRIVE(-)
E.E CONT(-)
AGC CONT
LLA
GND
C961(+)
IRIS DET
E.E CONT(+)
E.E DRIVE(+)
5V
CLP3
AGC DET
8.5V
R761
737 0.04
R742
R739
Q728
R738
R741
Q730
R740
R750
Q727
Q732
R747 3.3k
R749
R745
R746
R760 R752
Q729
C729 0.01
R744
Q731
R753
C735 4.7/10V
R751
R726
R759
R757
R737
Q733
C726 0.01
C722 0.01
Q725
R729
Q724
C736 0.04
R758
R728
R732
R725
R723
R731
R755
R735
R721
R756
R734
C727 0.001
R733
R722
R730
R724
1-616-282-
11

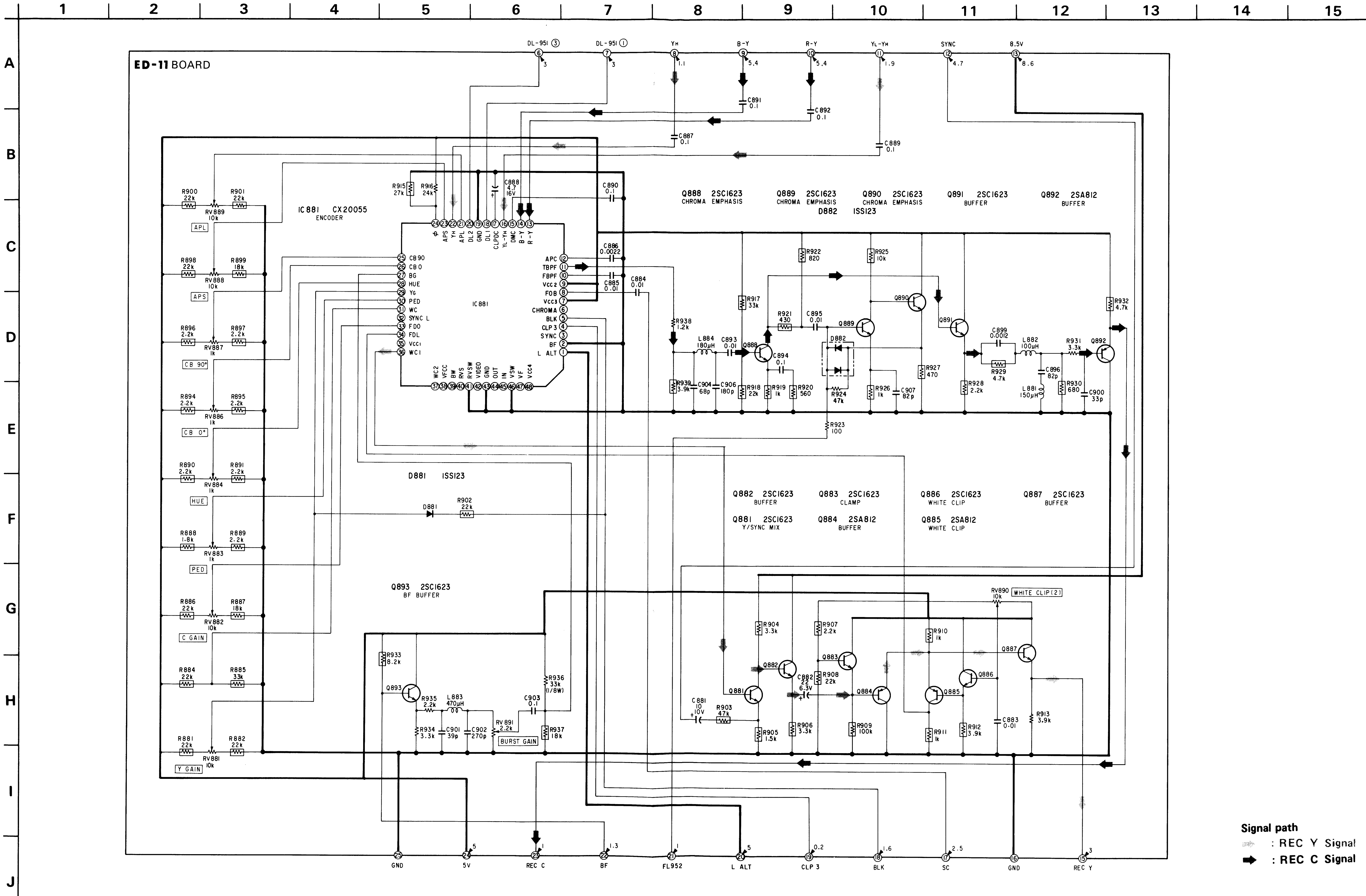
Q · IC	732 731 733	725 IC721	730	729 724	727	726 728 723 722 721	Q · IC
ADJ	RV723 RV722			RV721			ADJ

IA-1 BOARD (SIDE B)


C961(+)
GND
LLA
AGC CONT
EE CONT(-)
EE DRIVE(-)
VD
8.5V
AGC DET
CLP 3
5V
EE DRIVE(+)
EE CONT(+)
IRIS DET
4.7
3.7
2.7
4.5
4.1
3.6
8.6
4.3
0.2
5.2
4.6
4.5
4.3
RV723 4.7k
C725
RV721 22k
C721 22/6.3V
R736
7
IC721
8
14
C723 10/16
C730 10/10V
R748 47k
C733 0.22
R762 1M
RV722 22k
C731 1/25V
C728 22/6.3V
1-616-282-
11



ED-11 (ENCODER) SCHEMATIC DIAGRAM


1
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3
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7
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11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
ED-11 BOARD
DL-951 ③
DL-951 ①
YH
B-Y
R-Y
YL-YH
SYNC
8.5V
IC881 CX20055
ENCODER
IC881
R915 27k
R916 24k
C888 4.7 16V
C890 0.1
C886 0.0022
C885 0.01
C884 0.01
C887 0.1
C891 0.1
C892 0.1
C889 0.1
R900 22k
R901 22k
RV889 10k
APL
R898 22k
R899 18k
RV888 10k
APS
R896 2.2k
R897 2.2k
RV887 1k
CB 90°
R894 2.2k
R895 2.2k
RV886 1k
CB 0°
R890 2.2k
R891 2.2k
RV884 1k
HUE
R888 1.8k
R889 2.2k
RV883 1k
PED
R886 22k
R887 18k
RV882 10k
C GAIN
R884 22k
R885 33k
R881 22k
R882 22k
RV881 10k
Y GAIN
CB90
CB0
BG
HUE
YG
PED
WC
SYNC L
FDO
FDL
VCCI
WCI
APC
TBPF
FBPF
VCC2
FOB
VCC3
CHROMA
BLK
CLP3
SYNC
BF
L ALT
WC2
VFCC
BW
RVS
RVSW
VIDEO
GND
OUT
IN
VSW
VF
VCC4
APS
YH
APL
DL2
GND
DL1
CLPDC
YL-YH
DMC
B-Y
R-Y
Q888 2SC1623
CHROMA EMPHASIS
Q889 2SC1623
CHROMA EMPHASIS
D882 1SS123
Q890 2SC1623
CHROMA EMPHASIS
Q891 2SC1623
BUFFER
Q892 2SA812
BUFFER
R922 820
R925 10k
R917 33k
R921 430
C895 0.01
R938 1.2k
L884 180μH
C893 0.01
C894 0.1
R939 3.9k
C904 68p
C906 180p
R918 22k
R919 1k
R920 560
R924 47k
R926 1k
C907 82p
R927 470
R928 2.2k
C899 0.0012
R929 4.7k
L882 100μH
C896 82p
L881 150μH
R931 3.3k
R930 680
C900 33p
R932 4.7k
R923 100
D881 1SS123
D881
R902 22k
Q882 2SC1623
BUFFER
Q883 2SC1623
CLAMP
Q886 2SC1623
WHITE CLIP
Q887 2SC1623
BUFFER
Q881 2SC1623
Y/SYNC MIX
Q884 2SA812
BUFFER
Q885 2SA812
WHITE CLIP
Q893 2SC1623
BF BUFFER
R933 8.2k
R935 2.2k
L883 470μH
C903 0.1
R936 33k (1/8W)
R934 3.3k
C901 39p
C902 270p
RV891 2.2k
BURST GAIN
R937 18k
RV890 10k
WHITE CLIP (2)
R904 3.3k
R907 2.2k
R910 1k
C882 22 6.3V
R908 22k
C881 10 10V
R903 47k
R905 1.5k
R906 3.3k
R909 100k
R911 1k
R912 3.9k
C883 0.01
R913 3.9k
GND
5V
REC C
BF
FL952
L ALT
CLP 3
BLK
SC
GND
REC Y

Signal path

- : REC Y Signal
- ➡ : REC C Signal

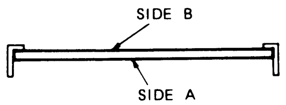
- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all μF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.

Note (SCHEMATIC DIAGRAM) :

- ▭ : printing resistor.
- ▭ : panel designation.
- ▭ : adjustment designation.
- ▬ : B+ line.
- Measuring conditions of voltage value and waveform
  (1) The subject is color bar of pattern box.
  (2) The voltage value is a reference value between the grounding.
  (The tester used is the digital multimeter DC10MΩ)
  (3) The voltage value are all in the recording mode of operation.

Note (PRINTED WIRING BOARD) :

- ⊗ : mark is slew hole.
- ○— : lead wire attached to the component side.
- ●— : lead wire attached to the pattern side.
- ▒ : pattern from the side which enables seeing.
- ░ : pattern of the rear side.
- ░ : B+ pattern.
- ▨ : printing resistance.
- The voltage value is all recording mode of operation.


SIDE B
SIDE A

Note

Soldering side: Parts on the soldering side being seen from the soldering are stated.

Component side: Parts on the component side being seen from the component are stated.

Regarding color indication of patterns

* Patterns being seen in the state from the surface side are indicated in gray pattern and red pattern (B+ pattern).

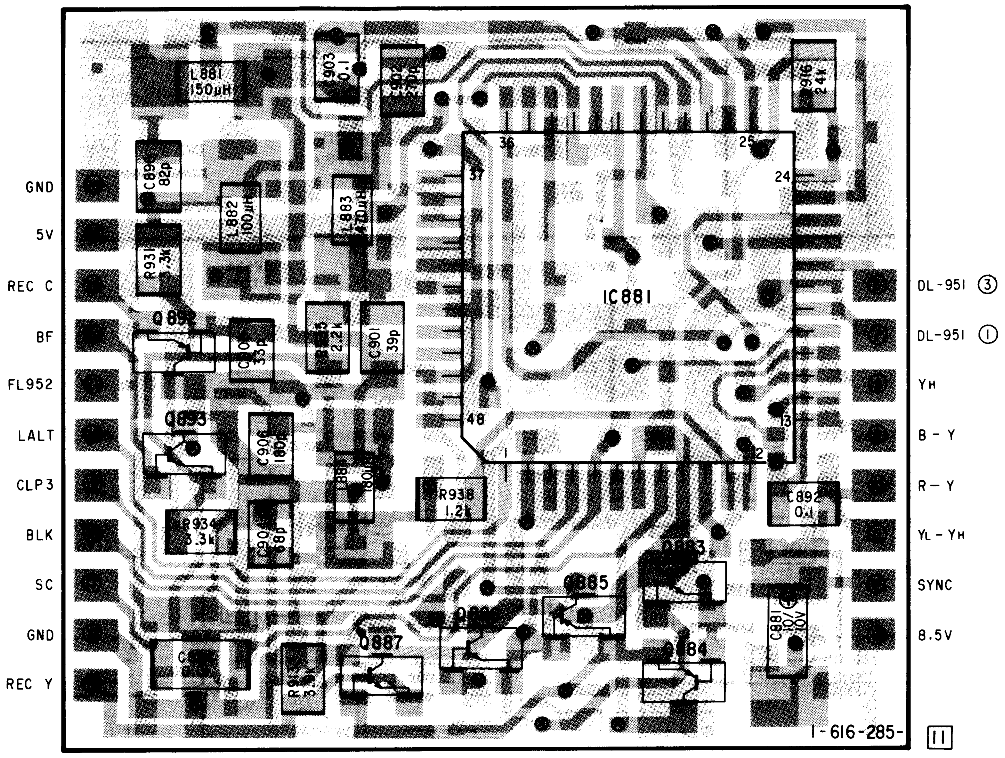
* Pattern being seen in the state of the rear surface side is indicated in green pattern.

ED-11 (ENCODER) PRINTED WIRING BOARD

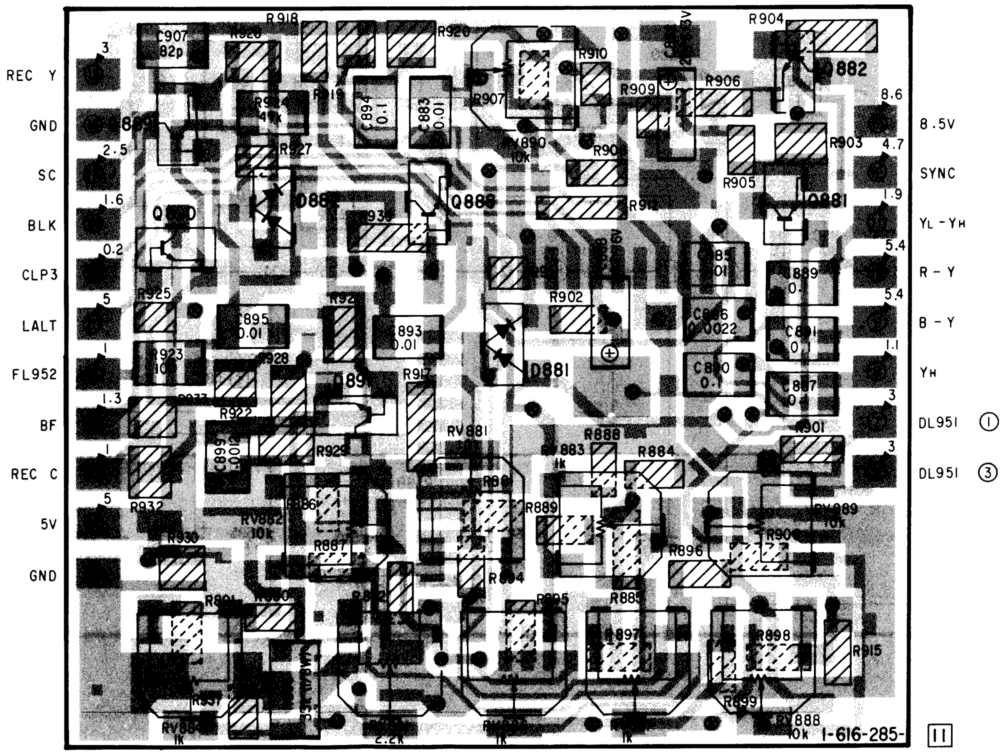
1 2 3 4 5 6 7 8 9 10 11

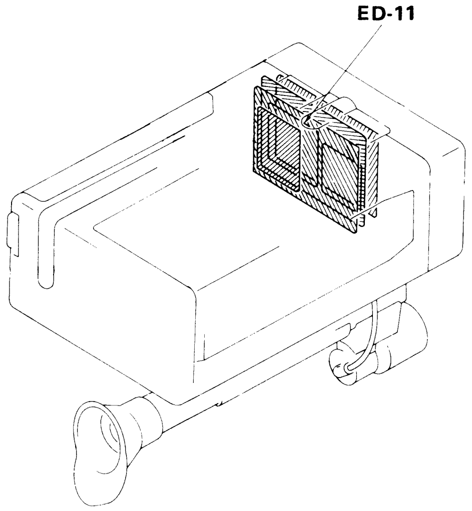
	Q , IC	D	ADJ
A			
B	IC881		
C	892 893		
D	883 885 886 887 884		
E			
F	882		RV890
G	889 888 881 890	882	
H	891	881	RV881
I			RV882 RV889 RV883 RV884 RV887 RV886 RV891 RV888
J	Q , IC	D	ADJ

ED-11BOARD (SIDE A)

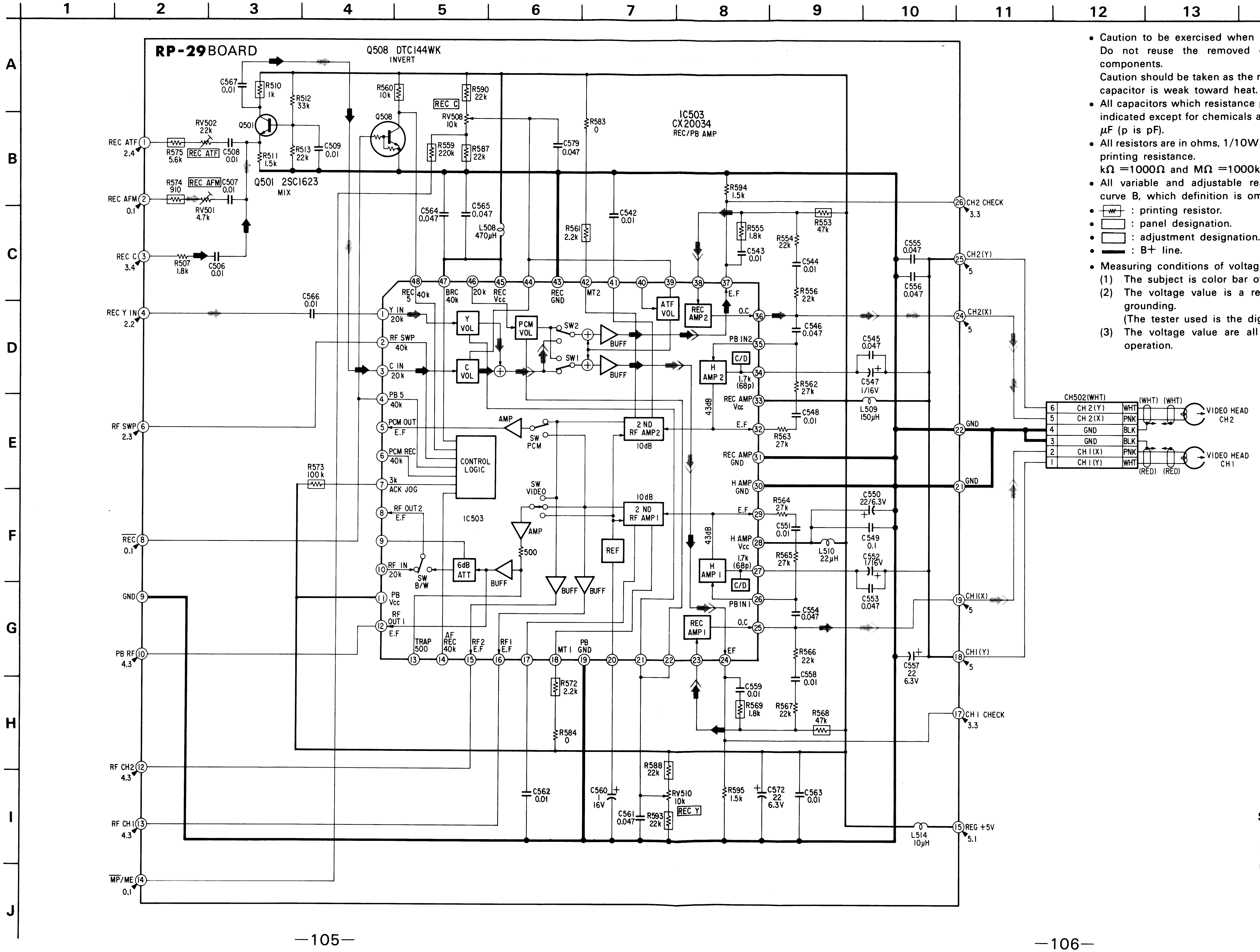

GND
5V
REC C
BF
FL952
LALT
CLP3
BLK
SC
GND
REC Y
L881 150μH
C903 0.1
C902 220p
R916 24k
C899 82p
L882 100μH
L883 100μH
R931 3.3k
IC881
Q892
R935 2.2k
C901 39p
Q893
C906 180p
R938 1.2k
C892 0.1
R934 3.3k
Q883
Q885
C881 10V
Q887
Q884
36
37
25
24
48
13
1
12
1-616-285-
11
DL-951 ③
DL-951 ①
YH
B-Y
R-Y
YL-YH
SYNC
8.5V

ED-11BOARD (SIDE B)


REC Y
GND
SC
BLK
CLP3
LALT
FL952
BF
REC C
5V
GND
C907 82p
R918
R920
R904
Q882
R910
R906
R909
C894 0.1
C883 0.01
R907
R903
R905
Q886
Q881
Q888
D881
C895 0.01
C893 0.01
R902
R925
R923
R928
R922
Q891
R881
R883
R884
R886
R887
R888
R889
R896
R897
R898
R915
R901
1-616-285-
11
8.6
4.7
1.9
5.4
5.4
1.1
3
3
2.5
1.6
0.2
1.3
8.5V
SYNC
YL-YH
R-Y
B-Y
YH
DL951 ①
DL951 ③



RP-29 (HEAD AMP) SCHEMATIC DIAGRAM


1
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6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
RP-29 BOARD
Q508 DTC144WK
INVERT
Q501 2SC1623
MIX
C567 0.01
R510 1k
R512 33k
R513 22k
C509 0.01
R511 1.5k
RV502 22k
R575 5.6k
REC ATF
C508 0.01
R574 910
REC AFM
C507 0.01
RV501 4.7k
R507 1.8k
C506 0.01
REC ATF 1 2.4
REC AFM 2 0.1
REC C 3 3.4
REC Y IN 4 2.2
RF SWP 6 2.3
REC 8 0.1
GND 9
PB RF 10 4.3
RF CH2 12 4.3
RF CH1 13 4.3
MP/ME 14 0.1
R560 10k
R590 22k
REC C
RV508 10k
R559 220k
R587 22k
C564 0.047
C565 0.047
L508 470μH
C579 0.047
R583 0
R561 2.2k
C542 0.01
IC503
CX20034
REC/PB AMP
R594 1.5k
R555 1.8k
C543 0.01
R554 22k
R553 47k
C544 0.01
R556 22k
C546 0.047
R562 27k
C548 0.01
R563 27k
C545 0.047
C547 1/16V
L509 150μH
C555 0.047
C556 0.047
C566 0.01
R573 100k
Y IN 20k
RF SWP 40k
C IN 20k
PB 5 40k
PCM OUT E.F
PCM REC 40k
3k ACK JOG
RF OUT2 E.F
RF IN 20k
PB Vcc
RF OUT1 E.F
REC 5 40k
BRC 40k
20k
REC Vcc
REC GND
MT2
Y VOL
C VOL
PCM VOL
SW2
SW1
BUFF
ATF VOL
REC AMP2
O.C
PB IN2
C/D
H AMP2
1.7k (68p)
REC AMP Vcc
43dB
E.F
AMP
SW PCM
2ND RF AMP2
10dB
CONTROL LOGIC
IC503
SW VIDEO
2ND RF AMP1
REC AMP GND
H AMP GND
R564 27k
C551 0.01
H AMP Vcc
R565 27k
L510 22μH
H AMP1
PB IN1
REC AMP1
EF
C554 0.047
R566 22k
C558 0.01
C550 22/6.3V
C549 0.1
C552 1/16V
C553 0.047
C557 22 6.3V
6dB ATT
SW B/W
500
REF
TRAP 500
AF REC 40k
RF2 E.F
RF1 E.F
MT1
PB GND
R572 2.2k
R584 0
C559 0.01
R569 1.8k
R567 22k
R568 47k
C562 0.01
C560 1 16V
C561 0.047
R588 22k
RV510 10k
REC Y
R593 22k
R595 1.5k
C572 22 6.3V
C563 0.01
L514 10μH
CH2 CHECK 26 3.3
CH2(Y) 25 5
CH2(X) 24 5
GND 22
GND 21
CH1(X) 19 5
CH1(Y) 18 5
CH1 CHECK 17 3.3
REG +5V 15 5.1
CH502(WHT)
6 CH 2(Y) WHT
5 CH 2(X) PNK
4 GND BLK
3 GND BLK
2 CH 1(X) PNK
1 CH 1(Y) WHT
(WHT) (WHT)
(RED) (RED)
VIDEO HEAD CH2
VIDEO HEAD CH1

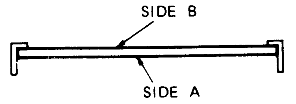
- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all μF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- ▭ : printing resistor.
- ☐ : panel designation.
- ☐ : adjustment designation.
- ▬ : B+ line.

- Measuring conditions of voltage value and waveform
  - (1) The subject is color bar of pattern box.
  - (2) The voltage value is a reference value between the grounding.
    (The tester used is the digital multimeter DC10MΩ)
  - (3) The voltage value are all in the recording mode of operation.

Signal path

⇨ : REC Y/C Signal
⇨ : REC Y Signal
➡ : REC C Signal
➡ : REC AUDIO Signal

- ⊗ : mark is slew hole.
- ○— : lead wire attached to the component side.
- ●— : lead wire attached to the pattern side.
- ▨ : pattern from the side which enables seeing.
- ▨ : pattern of the rear side.
- ▨ : B+ pattern.
- ▨ : printing resistance.
- The voltage value is all recording mode of operation.
- Digital transistor (RP-29 : Q508)transistor with resistor. Refer to the RP-29 board schematic diagram for digital transistor.


SIDE B
SIDE A

Note

Soldering side:	Parts on the soldering side being seen from the soldering are stated.
Component side:	Parts on the component side being seen from the component are stated.

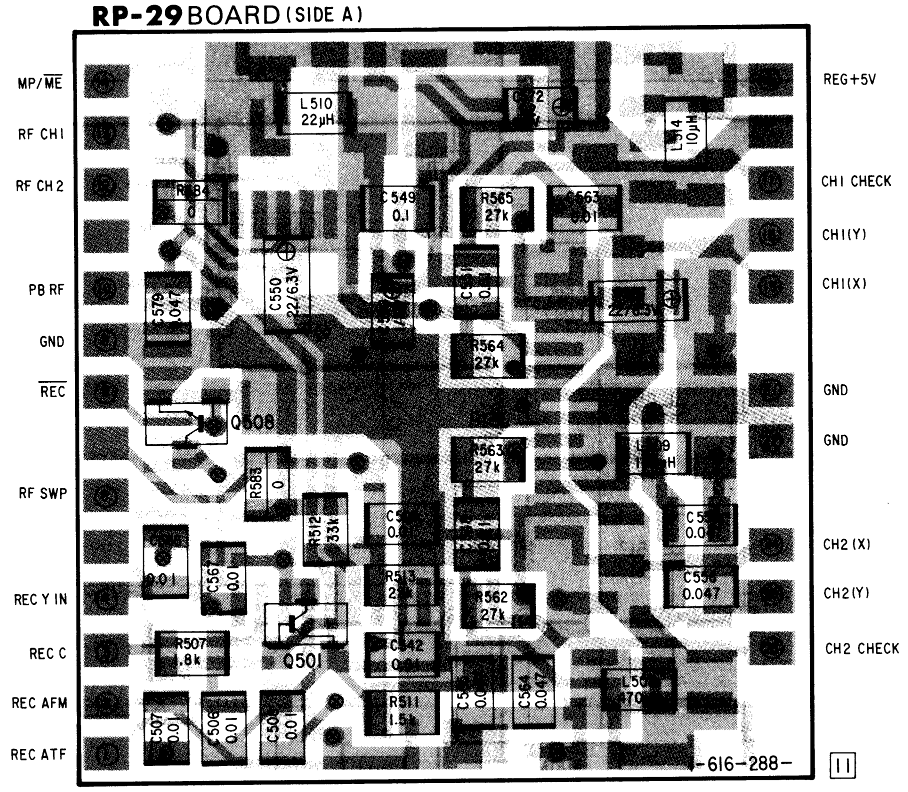
Regarding color indication of patterns

* Patterns being seen in the state from the surface side are indicated in gray pattern and red pattern (B+ pattern).

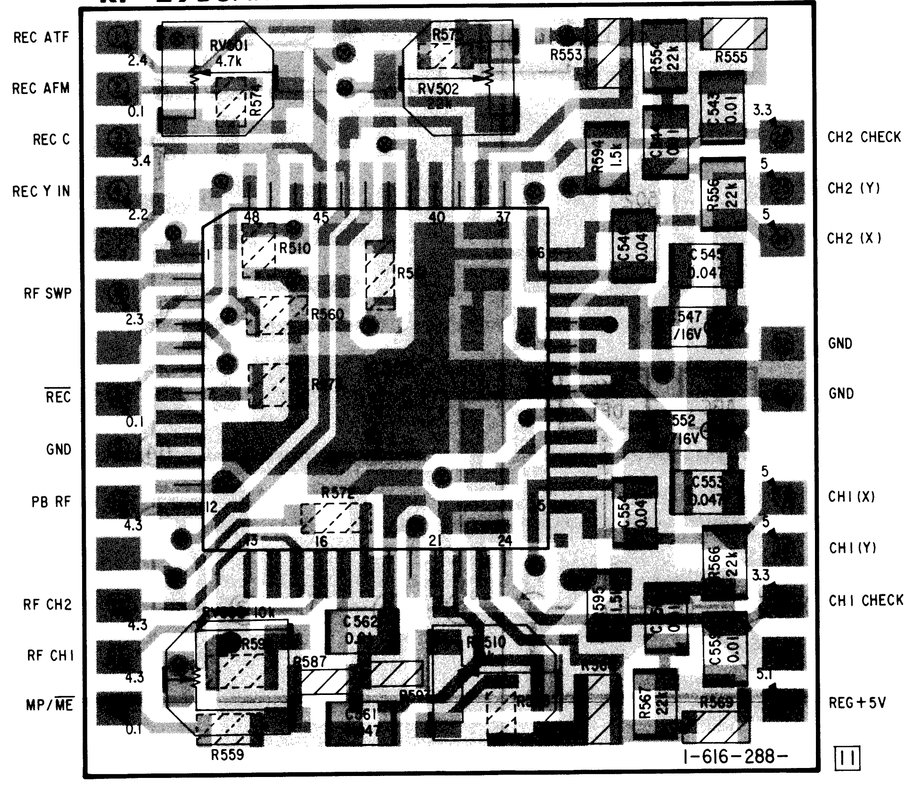
* Pattern being seen in the state of the rear surface side is indicated in green pattern.

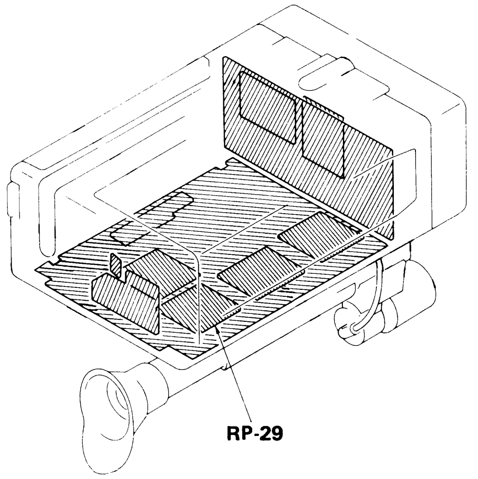
RP-29 (HEAD AMP) PRINTED WIRING BOARD

RP-29 BOARD (SIDE A)

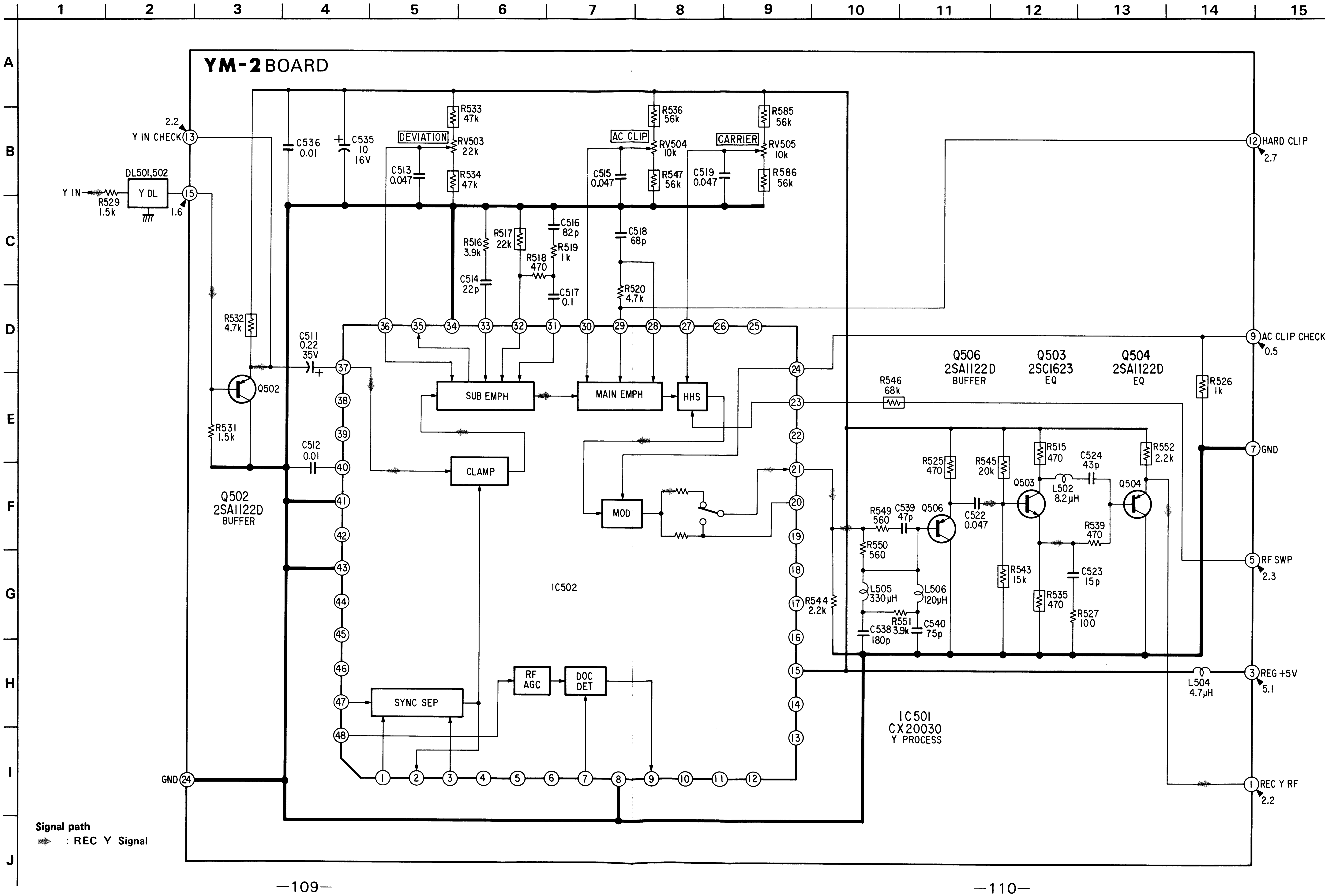

MP/ME
RF CH1
RF CH2
PB RF
GND
REC
RF SWP
REC Y IN
REC C
REC AFM
REC ATF
REG+5V
CH1 CHECK
CH1(Y)
CH1(X)
GND
GND
CH2(X)
CH2(Y)
CH2 CHECK
L510 22μH
L514 10μH
C549 0.1
R565 27k
C563 0.01
C550 22/6.3V
C579 0.047
R564 27k
Q508
R563 27k
R583 0
R512 33k
C561 0.01
R507 1.8k
Q501
R562 27k
C558 0.047
R511 1.5k
C564 0.047
C507 0.01
C506 0.01
1-616-288-
11

RP-29 BOARD (SIDE B)


REC ATF
REC AFM
REC C
REC Y IN
RF SWP
REC
GND
PB RF
RF CH2
RF CH1
MP/ME
CH2 CHECK
CH2 (Y)
CH2 (X)
GND
GND
CH1 (X)
CH1 (Y)
CH1 CHECK
REG+5V
RV501 4.7k
RV502
R553
R554 22k
R555
R556 22k
R510
R560
R572
R559
R587
R567 22k
R566 22k
C545 0.047
C552 16V
C553 0.047
48
45
40
37
1
12
13
16
21
24
2.4
0.1
3.4
2.2
2.3
0.1
4.3
4.3
4.3
0.1
3.3
5
5
5
5
3.3
5.1
1-616-288-
11



YM-2 (Y SIGNAL PROCESSING) SCHEMATIC DIAGRAM


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J
YM-2 BOARD
Y IN CHECK
2.2
Y IN
R529 1.5k
DL501,502
Y DL
1.6
GND
C536 0.01
C535 10 16V
DEVIATION
R533 47k
RV503 22k
R534 47k
C513 0.047
R516 3.9k
R517 22k
R518 470
C516 82p
R519 1k
C514 22p
C517 0.1
AC CLIP
R536 56k
RV504 10k
R547 56k
C515 0.047
C518 68p
R520 4.7k
CARRIER
R585 56k
RV505 10k
R586 56k
C519 0.047
R532 4.7k
Q502
R531 1.5k
C511 0.22 35V
C512 0.01
Q502 2SA1122D BUFFER
SUB EMPH
MAIN EMPH
HHS
CLAMP
MOD
SYNC SEP
RF AGC
DOC DET
IC502
IC501 CX20030 Y PROCESS
HARD CLIP 2.7
AC CLIP CHECK 0.5
GND
RF SWP 2.3
REG +5V 5.1
REC Y RF 2.2
Q506 2SA1122D BUFFER
Q503 2SC1623 EQ
Q504 2SA1122D EQ
R546 68k
R526 1k
R525 470
R545 20k
R515 470
C524 43p
R552 2.2k
L502 8.2μH
R549 560
C539 47p
C522 0.047
R539 470
R550 560
R543 15k
C523 15p
L505 330μH
L506 120μH
R535 470
R527 100
R544 2.2k
R551 3.9k
C538 180p
C540 75p
L504 4.7μH

Signal path

➡ : REC Y Signal

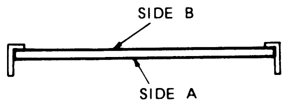
- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all μF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.

Note (SCHEMATIC DIAGRAM) :

- ▨ : printing resistor.
- ☐ : panel designation.
- ☐ : adjustment designation.
- ▬ : B+ line.
- - - - : B− line.
- Measuring conditions of voltage value and waveform
  (1) The subject is color bar of pattern box.
  (2) The voltage value is a reference value between the grounding.
  (The tester used is the digital multimeter DC10MΩ)
  (3) The voltage value are all in the recording mode of operation.

Note (PRINTED WIRING BOARD) :

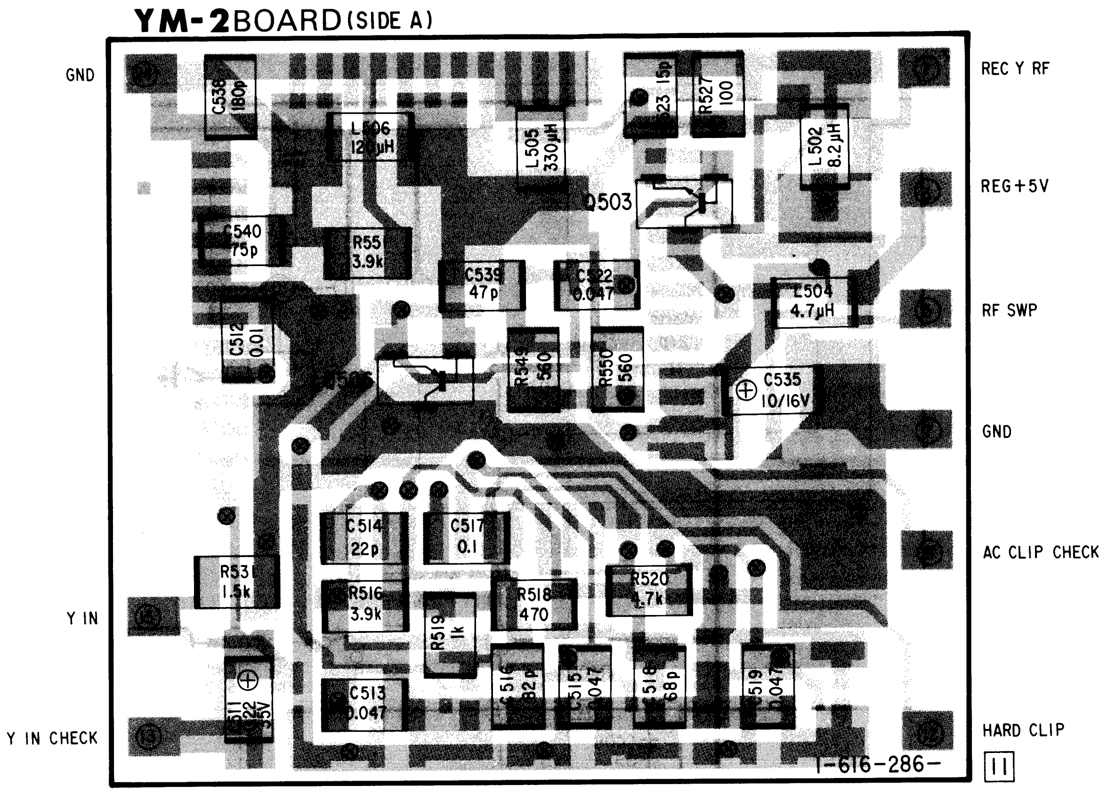
- ⊗ : mark is slew hole.
- ○— : lead wire attached to the component side.
- ●— : lead wire attached to the pattern side.
- ▩ : pattern from the side which enables seeing.
- ░ : pattern of the rear side.
- ▒ : B+ pattern.
- ▨ : printing resistance.
- The voltage value is all recording mode of operation.

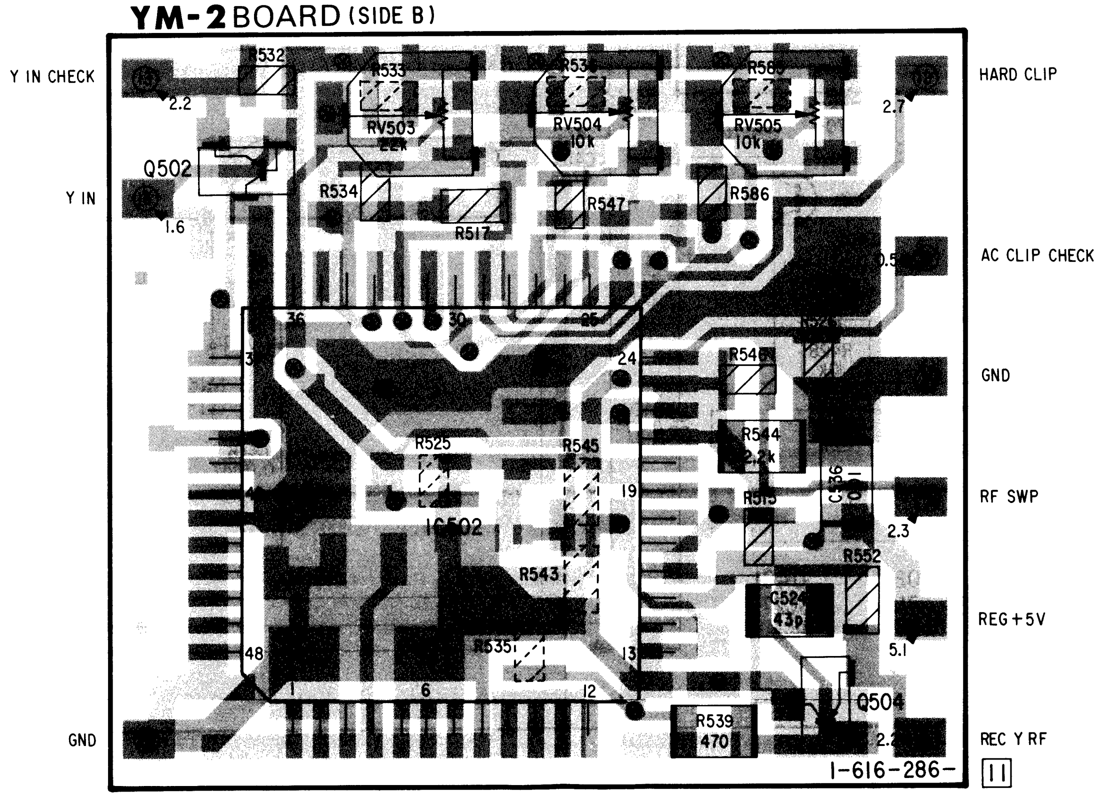

SIDE B
SIDE A

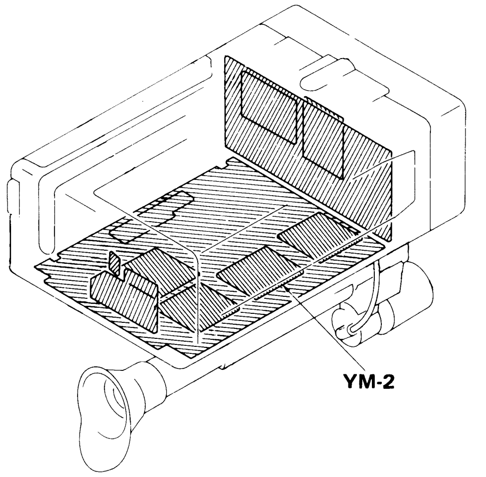
Note
Soldering side: Parts on the soldering side being seen from the soldering are stated.
Component side: Parts on the component side being seen from the component are stated.

Regarding color indication of patterns
* Patterns being seen in the state from the surface side are indicated in gray pattern and red pattern (B+ pattern).
* Pattern being seen in the state of the rear surface side is indicated in green pattern.

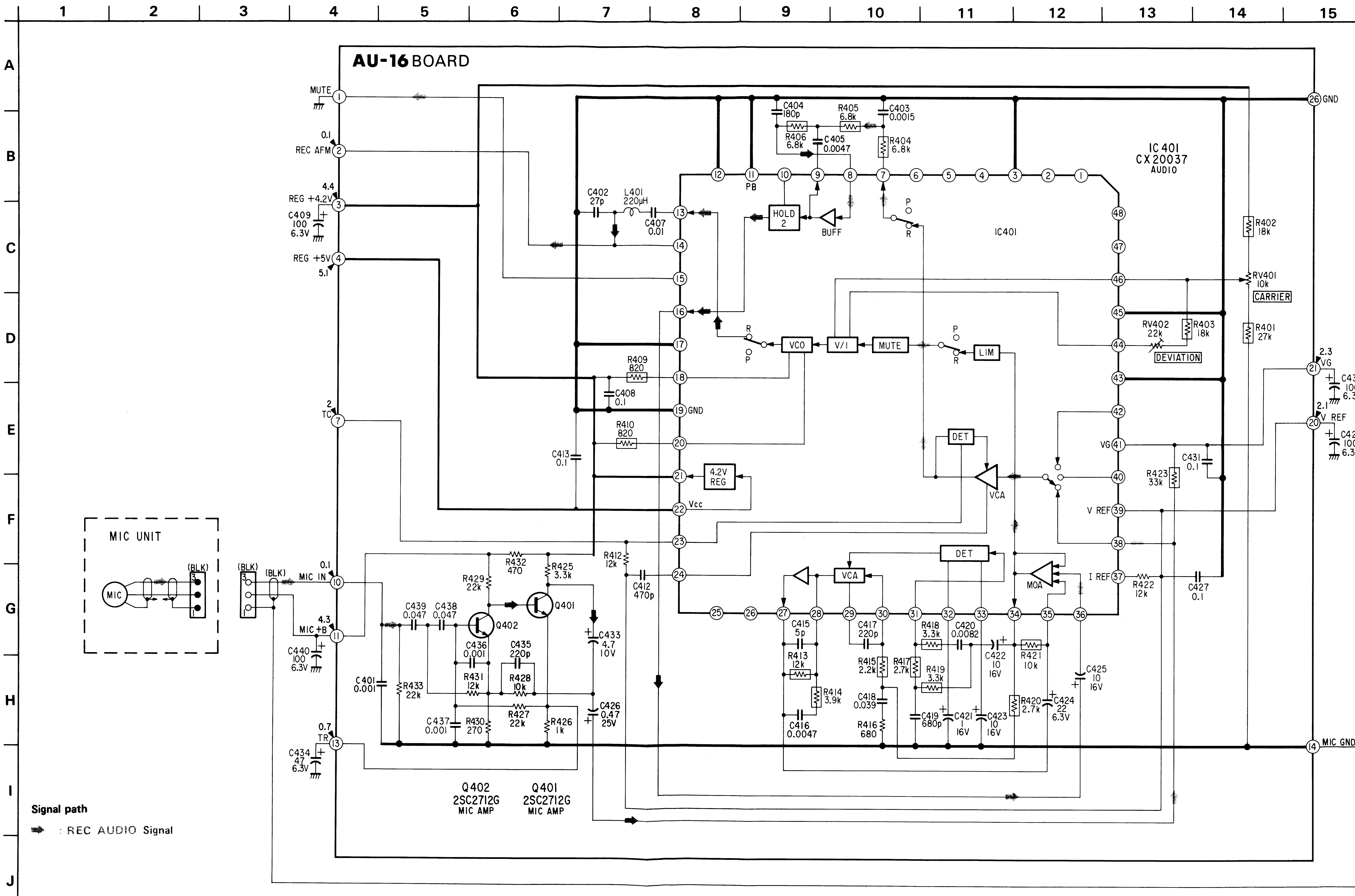
YM-2 (Y SIGNAL PROCESSING) PRINTED WIRING BOARD


YM-2 BOARD (SIDE A)
GND
Y IN
Y IN CHECK
REC Y RF
REG+5V
RF SWP
GND
AC CLIP CHECK
HARD CLIP
C536 180p
L506 120μH
L505 330μH
C523 15p
R527 100
L502 8.2μH
Q503
C540 75p
R55 3.9k
C539 47p
C522 0.047
L504 4.7μH
C512 0.01
R549 560
R550 560
C535 10/16V
C514 22p
C517 0.1
R531 1.5k
R516 3.9k
R519 1k
R518 470
R520 4.7k
C511 22 35V
C513 0.047
C516 82p
C515 .047
C518 68p
C519 0.047
1-616-286-
11


YM-2 BOARD (SIDE B)
Y IN CHECK
Y IN
GND
HARD CLIP
AC CLIP CHECK
GND
RF SWP
REG+5V
REC Y RF
2.2
1.6
2.7
2.3
5.1
2.2
R532
R533
RV503 22k
R53
RV504 10k
R58
RV505 10k
Q502
R534
R517
R547
R586
36
30
25
24
19
13
12
6
1
48
R546
R544 2.2k
R525
R545
IC502
R543
R535
R515
C536 0.01
R552
C524 43p
Q504
R539 470
1-616-286-
11



AU-16 (AUDIO) SCHEMATIC DIAGRAM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A
B
C
D
E
F
G
H
I
J
AU-16 BOARD
MUTE ①
0.1
REC AFM ②
4.4
REG +4.2V ③
C409 100 6.3V
REG +5V ④
5.1
2
TC ⑦
0.1
MIC IN ⑩
4.3
MIC +B ⑪
C440 100 6.3V
0.7
TR ⑬
C434 47 6.3V
MIC UNIT
MIC
(BLK)
(BLK)
(BLK)
IC401
CX20037
AUDIO
IC401
C402 27p
L401 220μH
C407 0.01
C404 180p
R406 6.8k
C405 0.0047
R405 6.8k
C403 0.0015
R404 6.8k
PB
HOLD 2
BUFF
P
R
VCO
V/I
MUTE
LIM
R409 820
C408 0.1
GND
R410 820
C413 0.1
4.2V REG
Vcc
DET
VCA
R412 12k
C412 470p
VCA
DET
MOA
C415 5p
R413 12k
C416 0.0047
R414 3.9k
C417 220p
R415 2.2k
C418 0.039
R416 680
R417 2.7k
R418 3.3k
C420 0.0082
R419 3.3k
C419 680p
C421 1 16V
C422 10 16V
R421 10k
C423 10 16V
R420 2.7k
C424 22 6.3V
C425 10 16V
R402 18k
RV401 10k
CARRIER
R401 27k
RV402 22k
R403 18k
DEVIATION
VG
V REF
I REF
R423 33k
C431 0.1
R422 12k
C427 0.1
26 GND
2.3
21 VG
2.1
20 V REF
14 MIC GND
C43
C42
R432 470
R429 22k
R425 3.3k
Q402
Q401
C439 0.047
C438 0.047
C436 0.001
C435 220p
R431 12k
R428 10k
C433 4.7 10V
C401 0.001
R433 22k
C437 0.001
R430 270
R427 22k
R426 1k
C426 0.47 25V
Q402 2SC2712G MIC AMP
Q401 2SC2712G MIC AMP

Signal path

➡ : REC AUDIO Signal

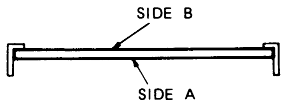
- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all μF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.

Note (SCHEMATIC DIAGRAM) :

- -w- : printing resistor.
- ☐ : panel designation.
- ☐ : adjustment designation.
- ▬ : B+ line.
- Measuring conditions of voltage value and waveform
  - (1) The subject is color bar of pattern box.
  - (2) The voltage value is a reference value between the grounding.
    (The tester used is the digital multimeter DC10MΩ)
  - (3) The voltage value are all in the recording mode of operation.

Note (PRINTED WIRING BOARD) :

- ⊗ : mark is slew hole.
- ○— : lead wire attached to the component side.
- ●— : lead wire attached to the pattern side.
- ▒ : pattern from the side which enables seeing.
- pattern of the rear side
- ░ : B+ pattern.
- ▨ : printing resistance.
- The voltage value is all recording mode of operation.



SIDE B
SIDE A

Note

Soldering side:	Parts on the soldering side being seen from the soldering are stated.
Component side:	Parts on the component side being seen from the component are stated.

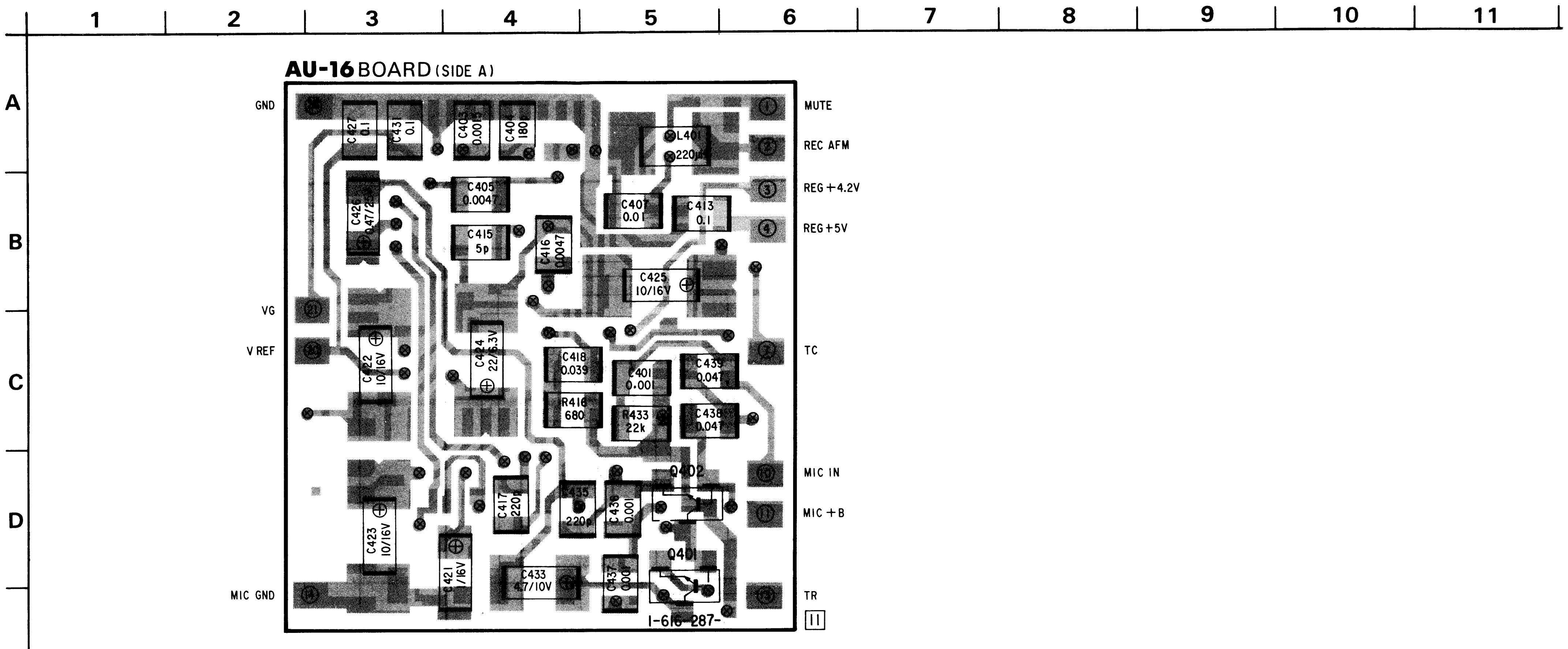
Regarding color indication of patterns

* Patterns being seen in the state from the surface side are indicated in gray pattern and red pattern (B+ pattern).

* Pattern being seen in the state of the rear surface side is indicated in green pattern.

AU-16 (AUDIO) PRINTED WIRING BOARD

AU-16 BOARD (SIDE A)



1
2
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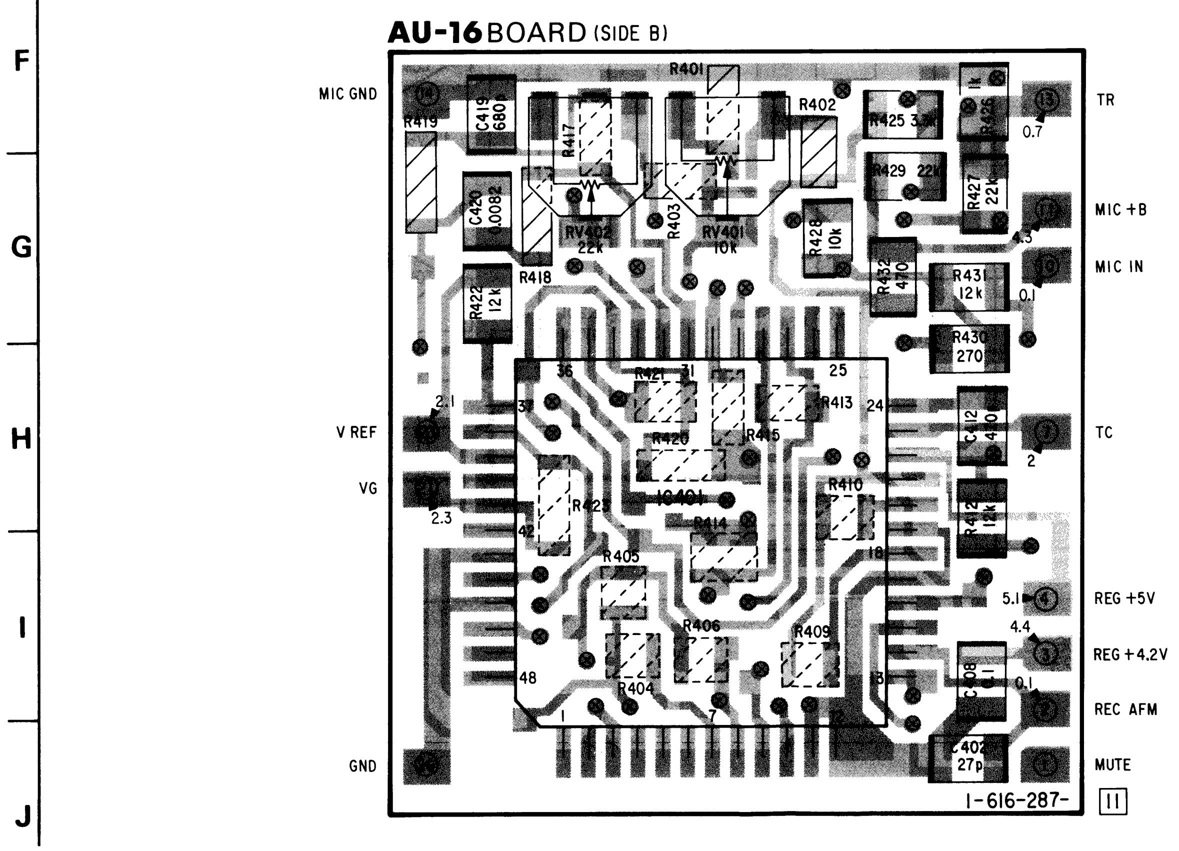
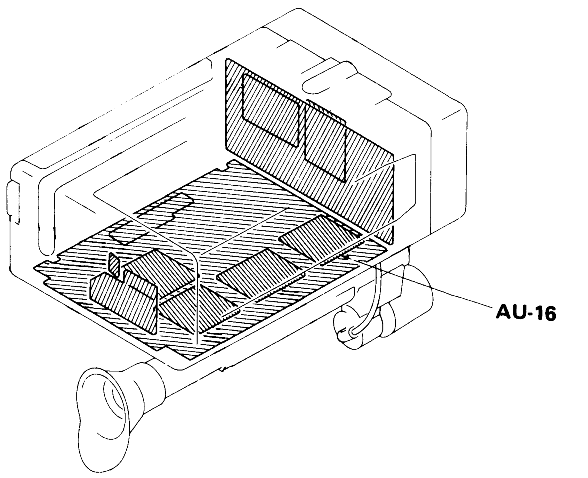
4
5
6
7
8
9
10
11
A
B
C
D
GND
VG
V REF
MIC GND
MUTE
REC AFM
REG +4.2V
REG +5V
TC
MIC IN
MIC +B
TR
C427 0.1
C431 0.1
C403 0.001
C404 180
L401 220μH
C405 0.0047
C426 0.47/25V
C415 5p
C416 0.0047
C407 0.01
C413 0.1
C425 10/16V
C422 10/16V
C424 22/6.3V
C418 0.039
R416 680
C401 0.001
R433 22k
C439 0.047
C438 0.047
Q402
C417 220p
C435 220p
C436 0.001
C423 10/16V
C421 1/16V
C433 4.7/10V
C437 0.001
Q401
1-616-287-
11

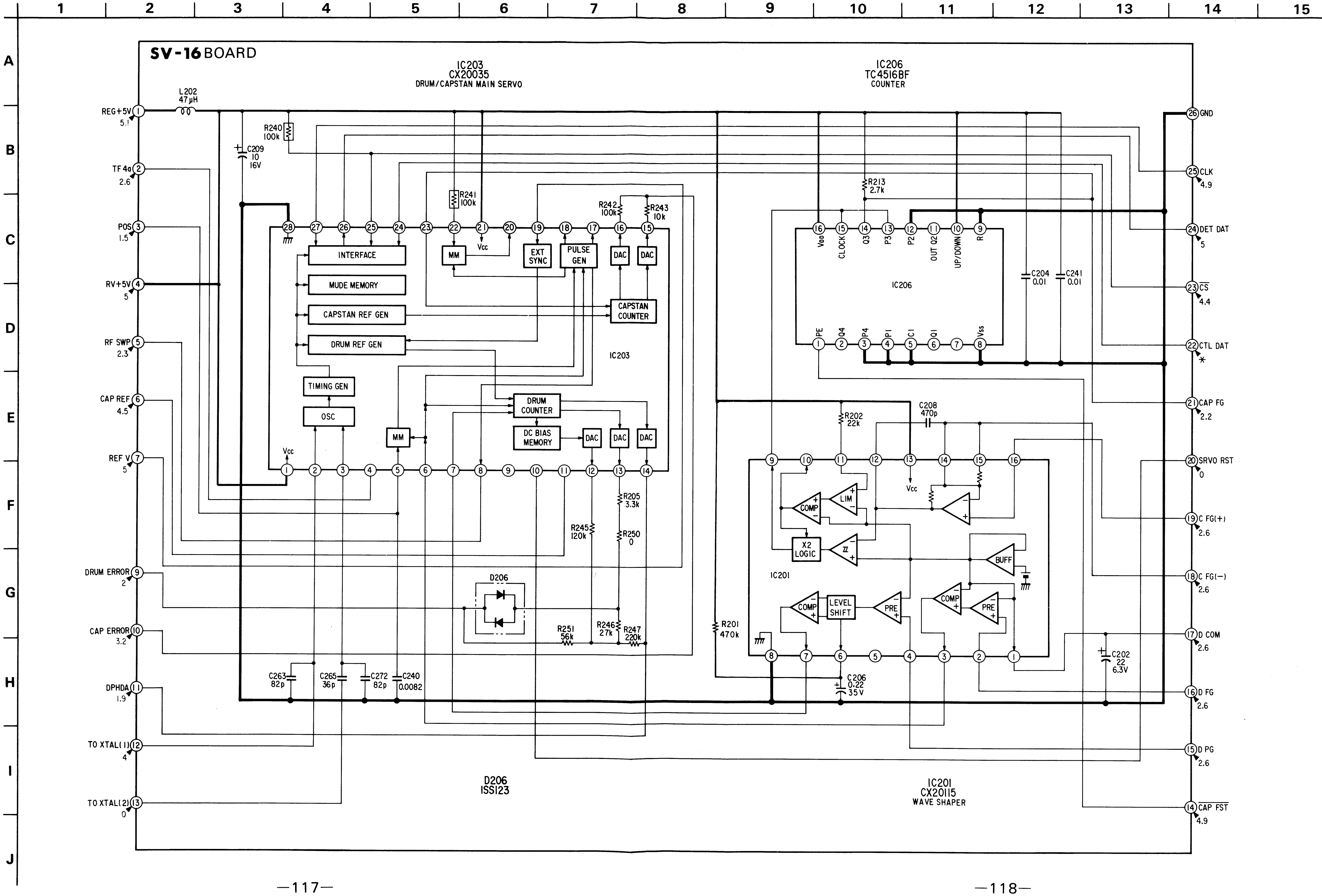
AU-16 BOARD (SIDE B)



E
F
G
H
I
J
MIC GND
V REF
VG
GND
TR
MIC +B
MIC IN
TC
REG +5V
REG +4.2V
REC AFM
MUTE
R401
R402
R419
C419 680
R417
R425 3.3k
R429 22k
R427 22k
C420 0.0082
RV402 22k
R403
RV401 10k
R428 10k
R432 470
R418
R422 12k
R431 12k
R430 270
36
25
24
37
R421
R413
R420
R415
IC401
R410
R411
R412
C412
R405
R414
R406
R409
R404
48
1
7
13
18
C408
C402 27p
0.7
4.3
0.1
2.1
2.3
2
5.1
4.4
0.1
1-616-287-
11



SV-16 (SERVO)SCHEMATIC DIAGRAM


SV-16 BOARD
IC203
CX20035
DRUM/CAPSTAN MAIN SERVO
IC206
TC4516BF
COUNTER
L202
47μH
REG+5V 1 5.1
TF 4a 2 2.6
POS 3 1.5
RV+5V 4 5
RF SWP 5 2.3
CAP REF 6 4.5
REF V 7 5
DRUM ERROR 9 2
CAP ERROR 10 3.2
DPHDA 11 1.9
TO XTAL(1) 12 4
TO XTAL(2) 13 0
R240 100k
C209 10 16V
R241 100k
R242 100k
R243 10k
INTERFACE
MUDE MEMORY
CAPSTAN REF GEN
DRUM REF GEN
TIMING GEN
OSC
MM
EXT SYNC
PULSE GEN
DAC
CAPSTAN COUNTER
DRUM COUNTER
DC BIAS MEMORY
IC203
Vcc
R205 3.3k
R245 120k
R250 0
D206
R251 56k
R246 27k
R247 220k
C263 82p
C265 36p
C272 82p
C240 0.0082
D206
ISS123
R213 2.7k
VDD
CLOCK
Q3
P3
P2
OUT Q2
UP/DOWN
R
PE
Q4
P4
P1
CI
Q1
Vss
IC206
C204 0.01
C241 0.01
R202 22k
C208 470p
COMP
LIM
X2 LOGIC
BUFF
LEVEL SHIFT
PRE
IC201
R201 470k
C206 0.22 35V
C202 22 6.3V
IC201
CX20115
WAVE SHAPER
26 GND
25 CLK 4.9
24 DET DAT 5
23 CS 4.4
22 CTL DAT *
21 CAP FG 2.2
20 SRVO RST 0
19 C FG(+) 2.6
18 C FG(−) 2.6
17 D COM 2.6
16 D FG 2.6
15 D PG 2.6
14 CAP FST 4.9

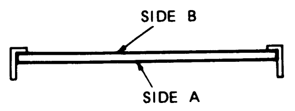
- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all μF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance; 1/32W in printing resistance.
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.

Note (SCHEMATIC DIAGRAM) :

- ─▭─ : printing resistor.
- ▭ : panel designation.
- ▭ : adjustment designation.
- ▬ : B+ line.
- Measuring conditions of voltage value and waveform
  - (1) The subject is color bar of pattern box.
  - (2) The voltage value is a reference value between the grounding.
    (The tester used is the digital multimeter DC10MΩ)
  - (3) The voltage value are all in the recording mode of operation.

Note (PRINTED WIRING BOARD) :

- ⊗ : mark is slew hole.
- ○— : lead wire attached to the component side.
- ●— : lead wire attached to the pattern side.
- ▓ : pattern from the side which enables seeing.
- pattern of the rear side.
- ░ : B+ pattern.
- ▨ : printing resistance.
- The voltage value is all recording mode of operation.


SIDE B
SIDE A

Note

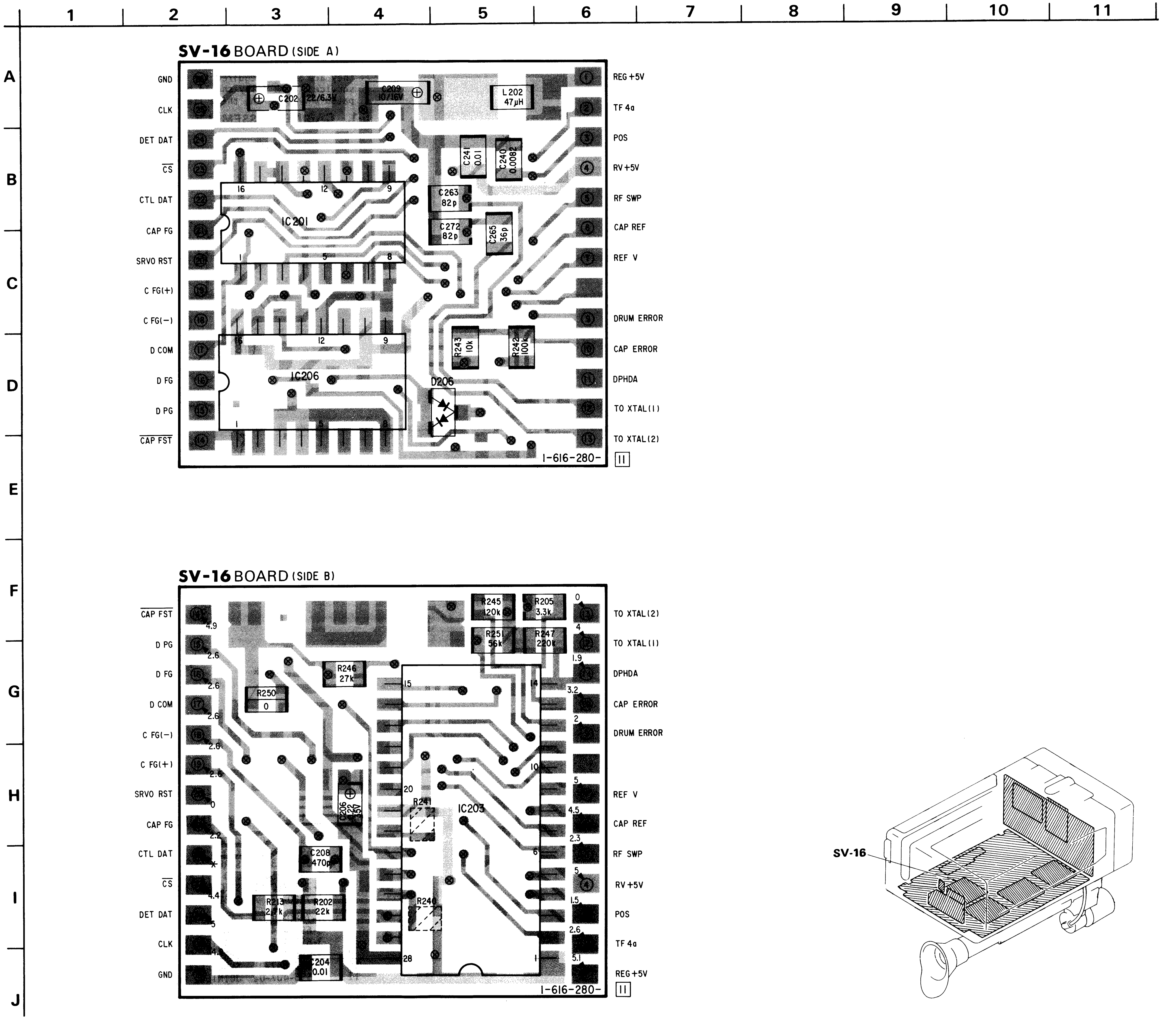
Soldering side: Parts on the soldering side being seen from the soldering are stated.

Component side: Parts on the component side being seen from the component are stated.

Regarding color indication of patterns

- * Patterns being seen in the state from the surface side are indicated in gray pattern and red pattern (B+ pattern).
- * Pattern being seen in the state of the rear surface side is indicated in green pattern.

SV-16 (SERVO) PRINTED WIRING BOARD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A
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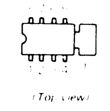
C
D
E
F
G
H
I
J
GND
CLK
DET DAT
CS
CTL DAT
CAP FG
SRVO RST
C FG(+)
C FG(−)
D COM
D FG
D PG
CAP FST
REG+5V
TF 4a
POS
RV+5V
RF SWP
CAP REF
REF V
DRUM ERROR
CAP ERROR
DPHDA
TO XTAL(1)
TO XTAL(2)
C202 22/6.3V
C209 10/16V
L202 47μH
C241 0.01
C240 0.0082
C263 82p
C272 82p
C265 36p
IC201
IC206
R243 10k
R242 100k
D206
1-616-280-
11
R245 120k
R205 3.3k
R251 56k
R247 220k
R246 27k
R250 0
C206 22 25V
R241
IC203
C208 470p
R213 2.2k
R202 22k
R240
C204 0.01
4.9
2.6
2.6
2.6
2.6
2.6
0
2.2
4.4
5
4.4
0
4
1.9
3.2
2
5
4.5
2.3
5
1.5
2.6
5.1
SV-16

SV-16 BOARD (SIDE A)

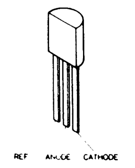
SV-16 BOARD (SIDE B)

4-3. SEMICONDUCTORS

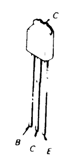
CX20036



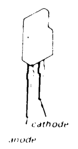
TL431CLPB


REF
ANODE
CATHODE

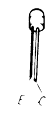
2SA1385



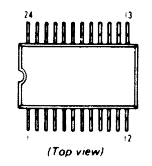
AA2222S
PY2222S
RP2222S


cathode
anode

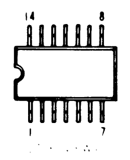
SPS-103-02



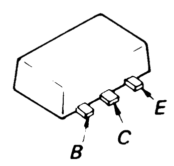
CX20114


24
13
1
12
(Top view)

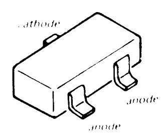
μPC324G2



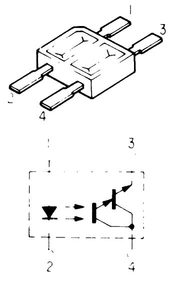
2SB1000AKTR
2SB798
2SD1366ACTR
2SD999



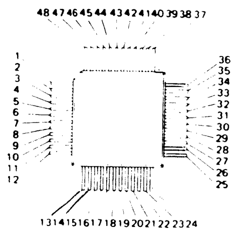
DAP202K
MA151WA


cathode
anode
anode

TLP907



CXD1011Q


48 47 46 45 44 43 42 41 40 39 38 37
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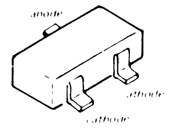
27
26
25
13 14 15 16 17 18 19 20 21 22 23 24

1S2835


anode
cathode
cathode

E10DS2
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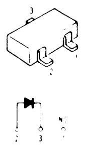

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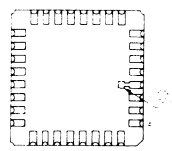

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2SC2412
2SC2712
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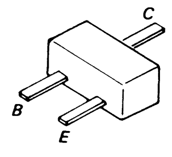
2SC2812L6
2SC2812L7
DTA114YK
DTA143EK
DTA144EK
DTC114EK
DTC144W



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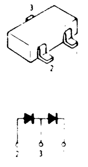

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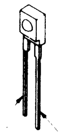

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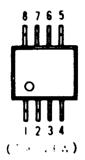

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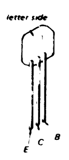
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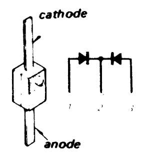
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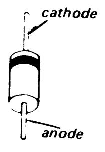
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SECTION 5

EXPLODED VIEWS

NOTE:
The mechanical parts with no reference number in the exploded views are not supplied.

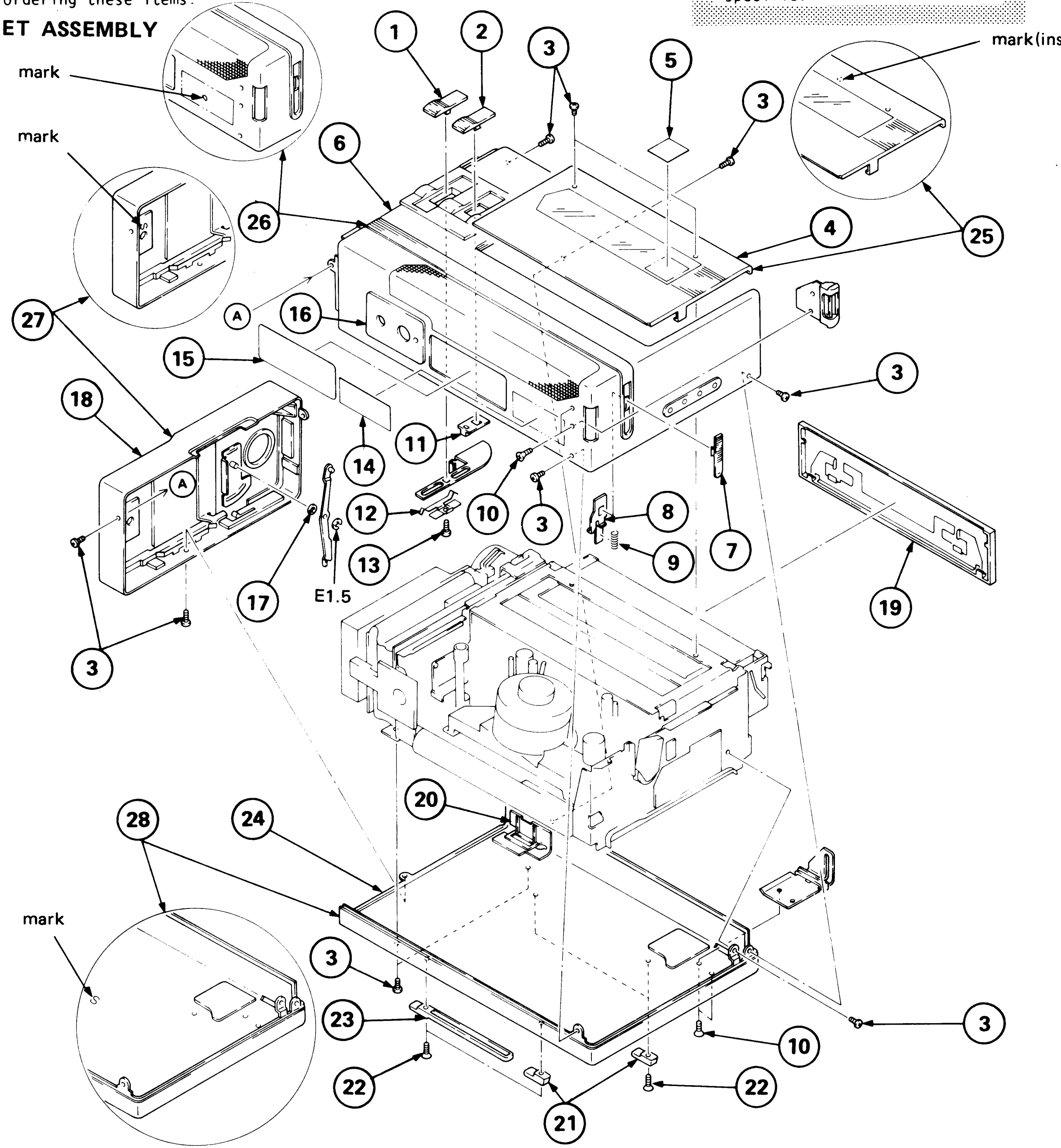
Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

· The construction parts of an assembled part are indicated with a collation number in the remark column.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

5-1. CABINET ASSEMBLY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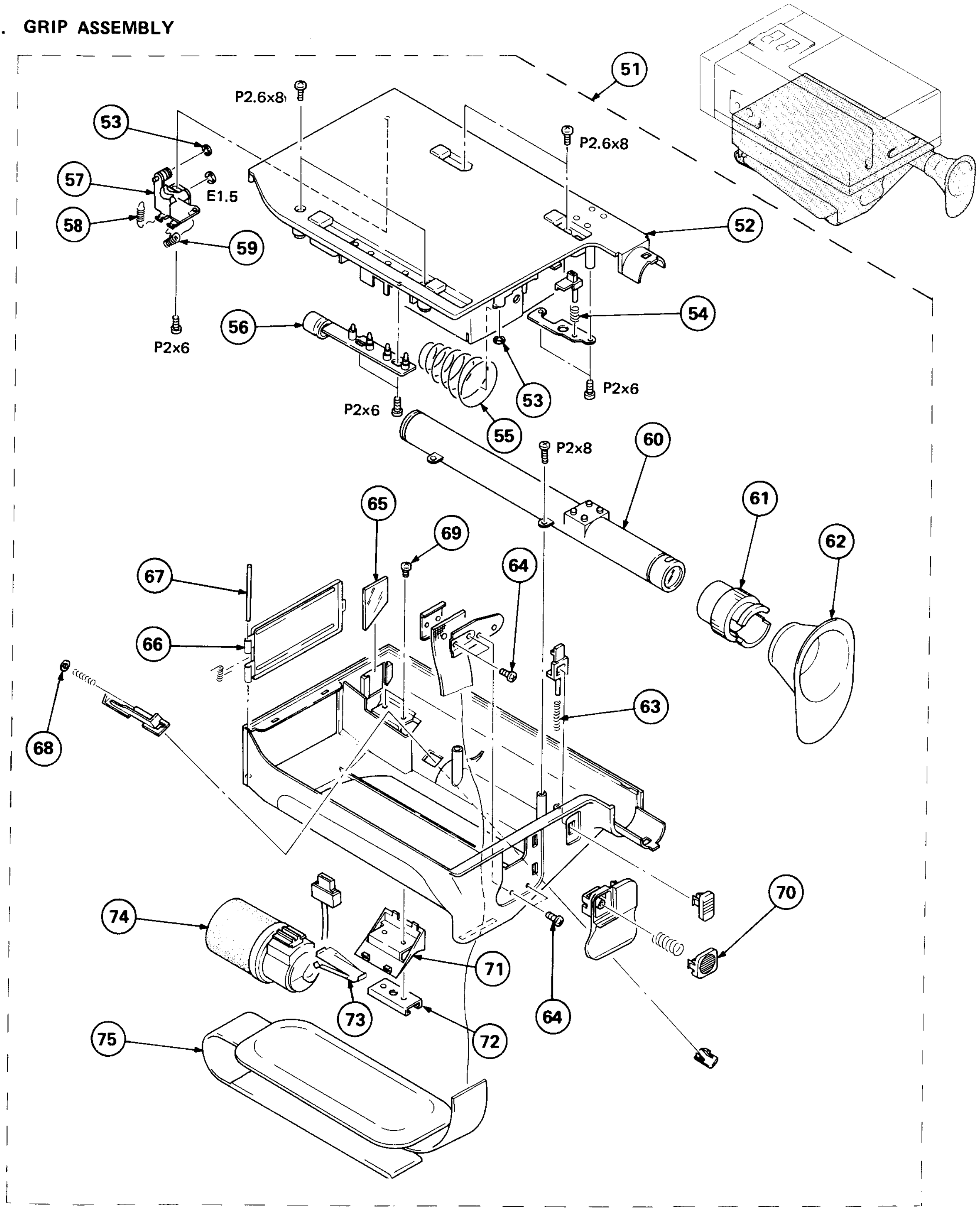
No.	Part No.	Description	Remark
1	3-695-427-01	KNOB, F	
2	3-695-406-01	KNOB, WB	
3	3-695-653-01	SCREW (1.7X3), TAPPING (B)	
4	X-3695-454-2	LID (T) ASSY	
5	3-703-710-41	STICKER, SONY SYMBOL (12)	
6	A-7080-075-A	CABINET (RT) BLOCK ASSY (US, CANADIAN MODEL)	
	A-7080-068-A	CABINET (RT) BLOCK ASSY (E MODEL)	
7	3-695-404-01	KNOB, EJECT	
8	3-695-405-01	JOINTER, EJECT	
9	3-695-482-02	SPRING, COMPRESSION	
10	3-695-667-01	SCREW (2X3)	
11	3-695-407-01	JOINTER, WB	
12	3-695-441-01	SPRING	
13	4-908-792-51	SCREW (B2X5), TAPPING, P1	
14	*3-703-044-26	LABEL, CAUTION (US, CANADIAN MODEL)	
15	3-696-058-01	LABEL, MODEL NUMBER (E MODEL)	
	*3-696-055-01	LABEL, MODEL NUMBER (US, CANADIAN MODEL	
16	3-695-409-01	PLATE, BOTTOM	
17	3-701-437-21	WASHER	
18	A-7080-067-A	CABINET (T) BLOCK ASSY, FRONT	
19	X-3695-422-1	LID ASSY, LS	
20	3-695-662-01	PANEL, CN	
21	3-695-484-01	GUIDE (C), GRIP	
22	3-695-668-01	SCREW (2X6)	
23	3-695-429-01	GUIDE (B), GRIP	
24	A-7080-066-A	CABINET (LT) BLOCK ASSY	
25	X-3695-408-2	LID ASSY, CASSETTE COMPARTMENT	
26	A-7080-052-A	CABINET (RIGHT) BLOCK ASSY (E MODEL)	
	A-7080-062-A	CABINET (RIGHT) BLOCK ASSY (US, CANADIAN MODE	
27	A-7080-053-A	CABINET BLOCK ASSY, FRONT	
28	A-7080-051-A	CABINET (LEFT) BLOCK ASSY	

5-2. GRIP ASSEMBLY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P2x6
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P2x6
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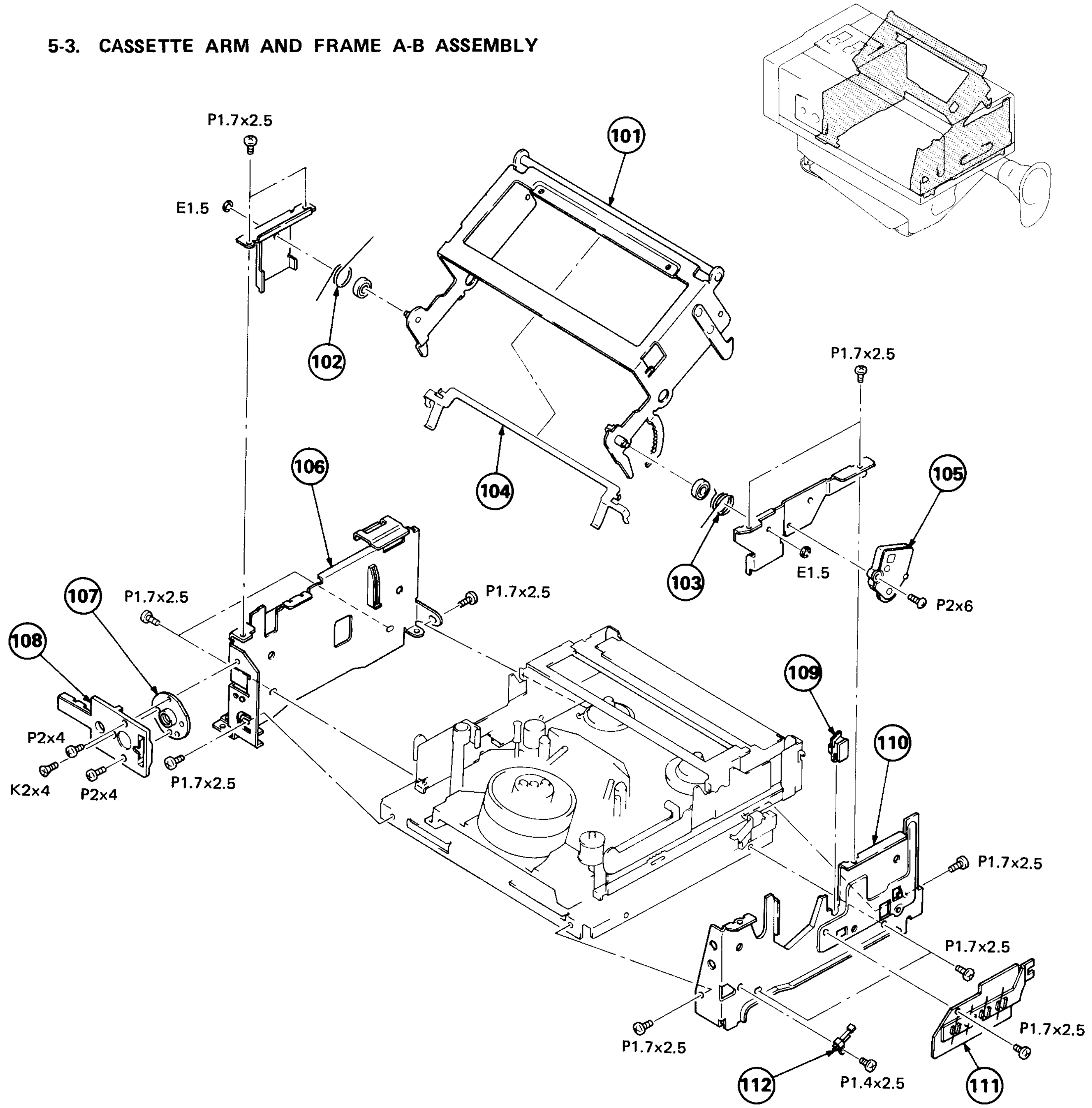
No.	Part No.	Description	Remark
51	*A-7080-063-A	GRIP BLOCK ASSY(US,CANADIAN MODEL)	52-75
	*A-7080-054-A	GRIP BLOCK ASSY (E MODEL)	52-75
52	A-7080-058-A	CABINET (R) BLOCK ASSY, GRIP	
53	3-578-254-00	RING, RETAINING, E1.2	
54	3-568-315-01	SPRING, COMPRESSION	
55	3-686-775-01	SPRING	
56	*1-616-467-11	FH-3 BOARD	
57	A-7090-137-A	SUPPORT (UPPER)BLOCK ASSY, LOCK	
58	3-307-377-11	SPRING, TENSION	
59	3-571-829-00	SPRING, TENSION	
60	1-547-187-11	OVF	
61	3-695-475-01	RING, RETAINING, EYE CUP	
62	3-695-502-01	EYE CUP	
63	3-480-102-00	SPRING, COMPRESSION	
64	3-695-675-01	SCREW (2X5)	
65	3-695-433-01	WINDOW, OVF	
66	3-695-459-01	LID, BATTERY CASE	
67	3-695-460-01	SHAFT, BATTERY CASE LID	
68	3-701-437-21	WASHER	
69	3-695-795-01	SCREW (2X3), (1) (+) (B)	
70	3-695-438-01	BUTTON, R	
71	3-695-672-01	COVER, FITTING, MICROPHONE	
72	3-695-673-01	SHOE, MICROPHONE	
73	3-695-674-01	SPRING	
74	8-810-511-90	C-2009 SET (MIC)	
75	3-695-458-01	BELT, GRIP	

5-3. CASSETTE ARM AND FRAME A-B ASSEMBLY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K2x4
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P1.7x2.5
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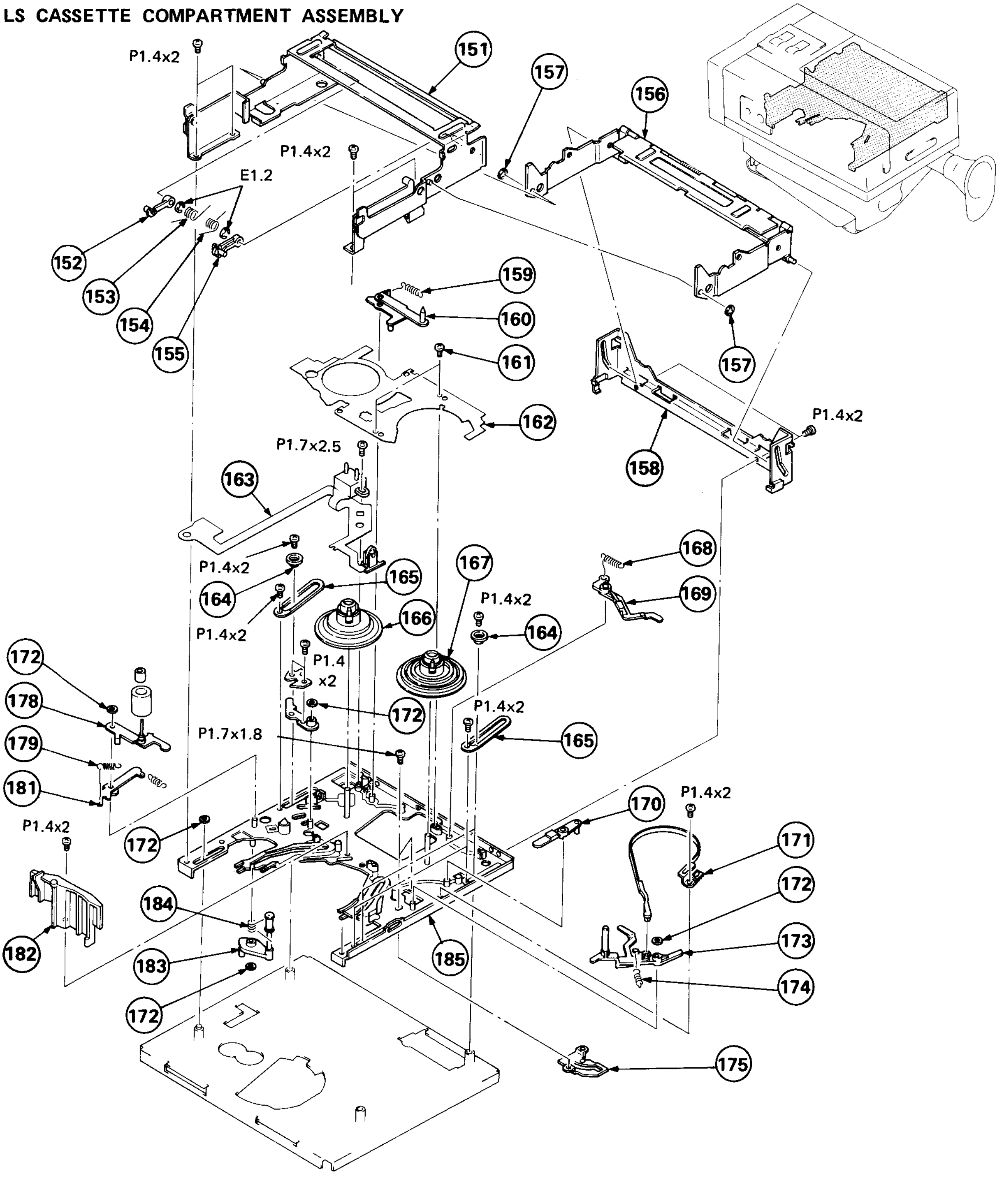
P1.7x2.5
P1.7x2.5
P1.7x2.5
P1.7x2.5
112
P1.4x2.5
111

No.	Part No.	Description	Remark
101	X-3695-449-1	ARM ASSY, CASSETTE	
102	3-695-582-01	SPRING, TORSION	
103	3-695-581-01	SPRING, TORSION	
104	3-695-580-01	RETAINER, CASSETTE COMPARTMENT	
105	3-681-528-11	DAMPER	
106	*X-3695-451-1	FRAME (A) ASSY	
107	3-695-401-01	SCREW, TRIPOD	
108	*3-695-402-01	PLATE, TRIPOD	
109	*1-616-466-11	ES-11 BOARD	
110	*X-3695-452-1	FRAME (B) ASSY	
111	1-616-450-11	FP-16 FLEXIBLE BOARD	
112	1-553-226-00	SWITCH, LEAF (EJECT SW) S201	

5-4. LS CASSETTE COMPARTMENT ASSEMBLY



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P1.4x2
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P1.7x2.5
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P1.4x2
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P1.4x2
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P1.4x2
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P1.7x1.8
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P1.4x2
P1.4x2
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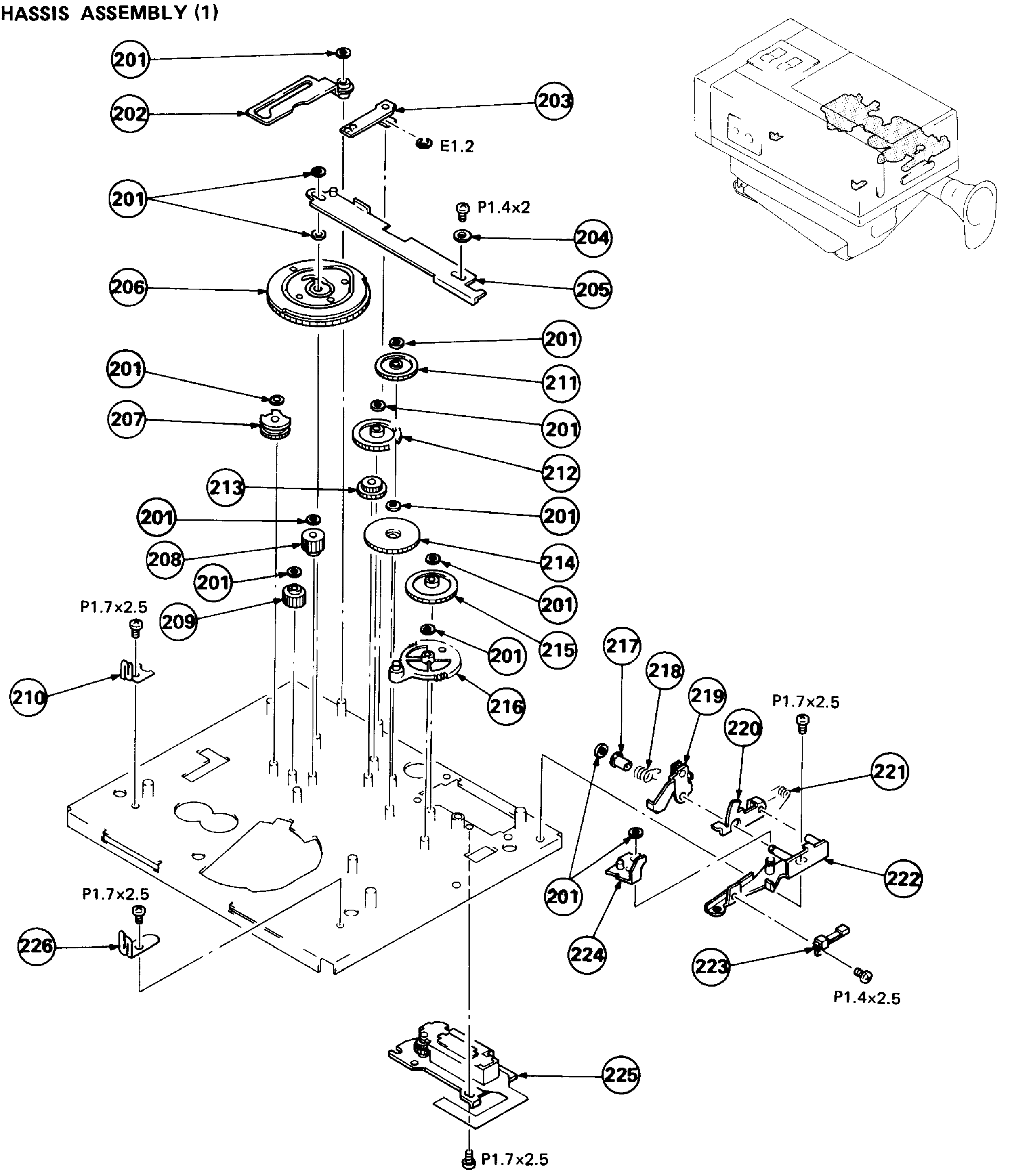
No.	Part No.	Description	Remark
151	X-3695-447-1	COMPARTMENT ASSY, CASSETTE, LS	
152	3-695-595-01	RETAINER (T), CASSETTE	
153	3-695-605-01	SPRING, TORSION	
154	3-695-604-01	SPRING, TORSION	
155	3-695-594-01	RETAINER (S), CASSETTE	
156	X-3695-448-3	ARM ASSY, BLIND	
157	3-669-465-00	WASHER (1.5), STOPPER	
158	3-695-646-01	ARM, LS	
159	3-695-718-01	SPRING, TENSION	
160	X-3695-431-1	LEVER (A) ASSY	
161	2-481-114-01	SCREW (A), TAPPING, EV	
162	*3-695-737-01	PLATE, STOPPER	
163	*A-7060-205-A	FP-8 BOARD, COMPLETE	
164	3-695-698-01	GUIDE, LS	
165	3-695-697-01	SPRING, LEAF, LS	
166	X-3695-436-1	TABLE ASSY, REEL, TAKE-UP	
167	X-3695-435-1	TABLE ASSY, REEL, SUPPLY	
168	3-695-717-01	SPRING, TENSION	
169	3-695-584-01	BRAKE, SOFT	
170	3-695-735-01	ARM, TG1 RELEASE	
171	X-3695-432-1	BAND ASSY, TG1	
172	3-315-384-31	WASHER, STOPPER	
173	X-3695-430-2	ARM ASSY, TG1	
174	3-695-591-01	SPRING, TENSION	
175	3-695-733-01	PLATE, CAM, LS	
176	X-3695-420-1	ARM (B) ASSY, PINCH	
177	3-695-570-01	ARM (B-A), PINCH	
178	X-3695-437-1	PINCH ARM (C) ASSY	
179	3-695-622-01	SPRING, TENSION	
180	3-695-719-01	SPRING, TENSION	
181	X-3695-415-1	PINCH LEVER ASSY	
182	3-695-624-01	BASE, PROTECT	
183	X-3695-434-1	TG7 ASSY	
184	3-695-541-01	SPRING	
185	X-3695-445-1	CHASSIS ASSY, LS	

5-5. CHASSIS ASSEMBLY (1)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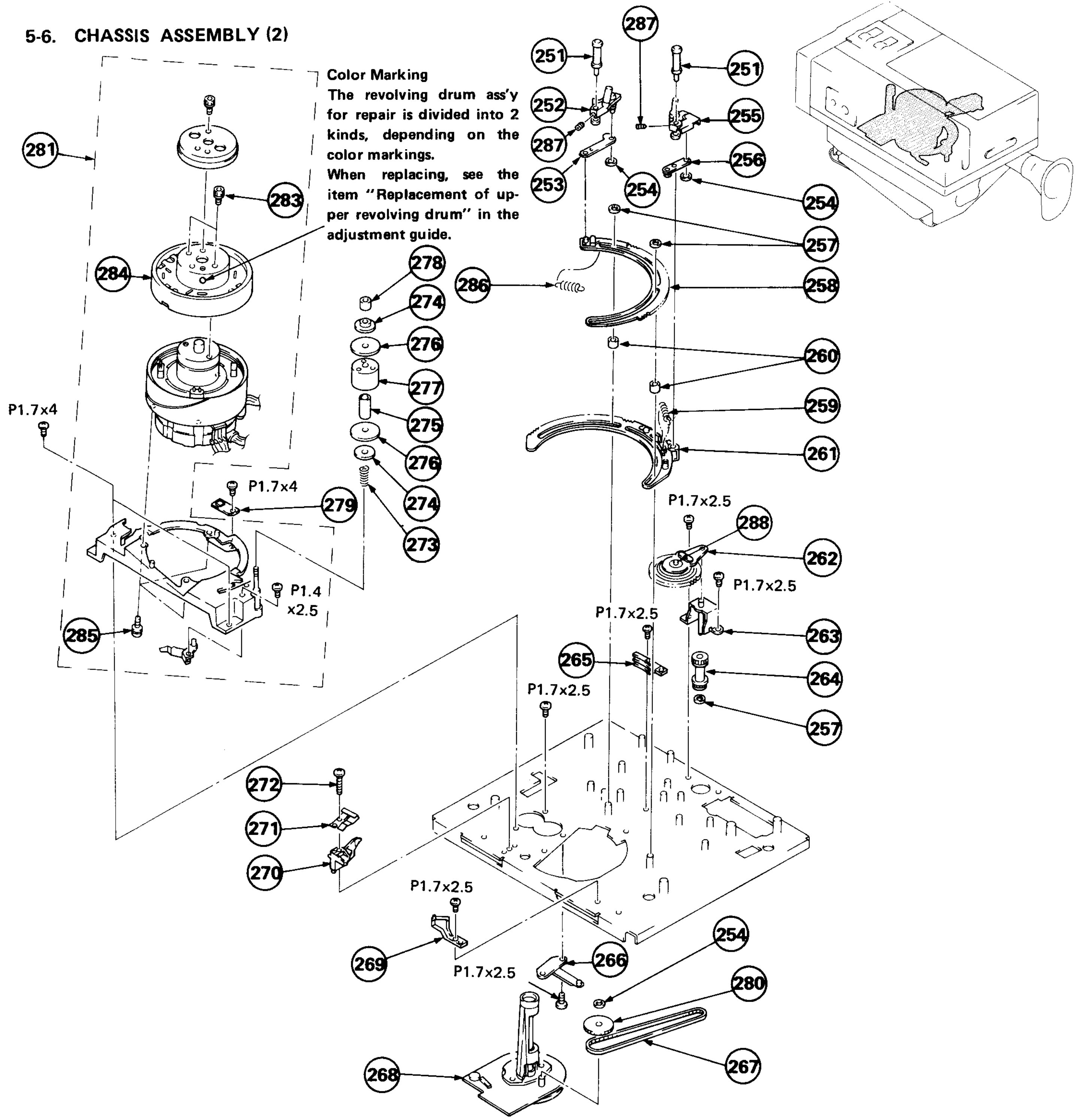
P1.7x2.5

No.	Part No.	Description	Remark
201	3-315-384-01	WASHER, STOPPER	
202	X-3695-419-1	ARM (A) ASSY, PINCH	
203	3-695-589-01	LEVER (B), REEL LOCK	
204	3-695-567-01	WASHER, M SLIDER	
205	X-3695-439-1	SLIDER ASSY, M	
206	X-3695-421-1	CAM ASSY	
207	3-695-642-01	GEAR (M), THREADING	
208	3-695-537-01	GEAR (T), THREADING	
209	3-695-536-01	GEAR (S), THREADING	
210	*3-695-706-01	SPRING (T)	
211	3-695-559-01	GEAR (B), THREADING	
212	3-695-724-01	GEAR (D), THREADING	
213	3-695-560-01	GEAR (C), THREADING	
214	3-695-714-01	GEAR (A), LS	
215	3-695-563-01	GEAR (B), LS	
216	X-3695-417-1	GEAR (C) ASSY, LS	
217	3-695-573-01	SLEEVE, LOCK SHAFT	
218	3-695-716-01	SPRING (A), TORSION	
219	X-3695-418-1	ARM ASSY, LOCK	
220	3-695-574-01	ARM, RETURN PREVENTION	
221	3-695-579-01	SPRING (B), TORSION	
222	X-3695-433-1	BASE ASSY, LOCK	
223	1-553-226-00	SWITCH, LEAF (CCD SW) S902	
224	X-3695-438-1	ARM ASSY, EJECT	
225	A-7040-051-A	MOTOR BLOCK ASSY, LM M901	
226	*3-695-705-01	SPRING (S)	

5-6. CHASSIS ASSEMBLY (2)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P1.7x2.5
P1.7x2.5
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P1.7x2.5
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271
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P1.7x2.5
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P1.7x2.5
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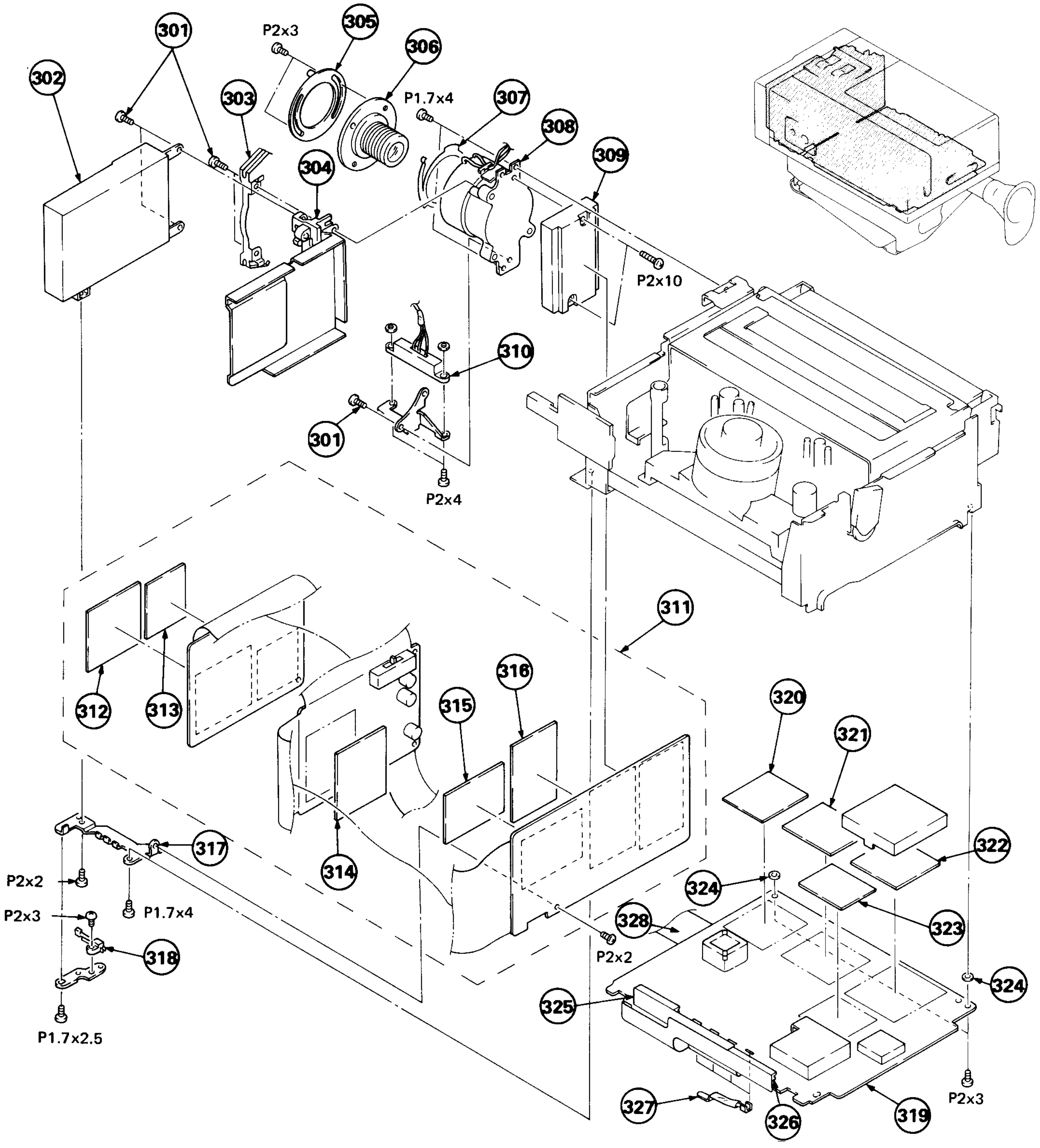
Color Marking
The revolving drum ass'y for repair is divided into 2 kinds, depending on the color markings.
When replacing, see the item "Replacement of upper revolving drum" in the adjustment guide.

No.	Part No.	Description	Remark
251	X-3695-440-1	ROLLER ASSY, GUIDE	
252	X-3695-443-1	BASE ASSY, TG5	
253	3-695-545-01	JOINT, T	
254	3-321-393-01	WASHER, STOPPER	
255	X-3695-442-1	BASE ASSY, TG4	
256	X-3695-429-1	JOINT ASSY, S	
257	3-315-384-31	WASHER, STOPPER	
258	X-3695-414-1	SLIDER (T) ASSY, THREADING	
259	3-695-772-01	SPRING, TENSION	
260	3-695-544-01	ROLLER, GUIDE	
261	X-3695-428-1	SLIDER (S) ASSY, THREADING	
262	X-3695-427-1	ARM ASSY, GEAR	288
263	X-3695-426-1	BASE ASSY, RELAY PULLEY	
264	X-3695-412-1	PULLEY ASSY, RELAY	
265	3-695-703-01	SUPPORT, SLIDER	
266	1-535-574-11	TERMINAL, SHAFT GROUND	
267	3-695-637-01	BELT, RELAY	
268	8-838-103-01	MOTOR, DC (BHF-3300A) (CAPSTAN) M902	
269	3-695-627-01	STOPPER, SLIDER, S	
270	3-695-628-01	STOPPER, SLIDER, T	
271	3-695-677-01	SPRING (T), LEAF	
272	3-695-519-01	SCREW, FITTING, LEAF SPRING(T)	
273	3-695-532-01	SPRING, COMPRESSION	
274	3-695-727-01	RETAINER, FLANGE, UPPER	
275	3-695-530-01	SLEEVE, TG2	
276	3-695-528-01	FLANGE, TG2	
277	3-695-730-01	ROLLER, TG2	
278	3-695-529-01	NUT, TG2	
279	1-807-238-11	SENSOR, DEW CONDENSATION	
280	X-3695-413-1	GEAR ASSY, CHANGE	
281	A-7048-030-A	DRUM ASSY (DVU-08A-R)	283-285
283	3-686-403-02	BOLT (WASHER)	
284	A-7049-040-A	DRUM ASSY, UPPER (DVR-08-R) MARKING; RED or BLUE	
	A-7049-041-A	DRUM ASSY, UPPER (DVR-08-R(O)) MARKING; BLACK or GREEN	
285	3-686-444-01	SCREW +P 2X5.5	
286	3-695-773-01	SPRING, TENSION	
287	3-695-770-01	SCREW, GR LOCK	
288	3-695-688-01	BOSS, ARM	

5-7. CAMERA AND BOARD ASSEMBLY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P2x3
P1.7x4
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318
P2x2
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P1.7x2.5
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319
P2x3

No.	Part No.	Description	Remark
301	3-695-670-01	SCREW (2X6), TAPPING (B)	
302	1-464-519-11	CONVERTER UNIT, DC-DC	
303	*3-695-416-01	SPRING	
304	*3-695-496-01	HOLDER (A), C PC BOARD	
305	*X-3695-401-1	RING ASSY, F	
306	1-547-188-11	LENS	
307	3-695-748-01	SPRING	
308	1-547-190-11	IRIS, RING	
309	8-750-010-22	IUX-001 (IU018-K-AA)	
310	1-558-160-11	SOCKET, CONNECTOR	
311	*A-7060-206-A	B-654 (VC-4, 5, 6) CAMERA BOARD, COMPLETE	312-316
312	A-7060-088-A	ED-11 BOARD, COMPLETE	
313	A-7060-085-A	IA-1 BOARD, COMPLETE	
314	A-7060-082-A	MX-2 BOARD, COMPLETE	
315	A-7060-087-A	SH-1 BOARD, COMPLETE	
316	A-7060-081-A	DT-60 BOARD, COMPLETE	
317	*3-695-403-01	HOLDER (B), C PC BOARD	
318	1-553-198-00	SWITCH, LEAF (LENS DOOR SW) S901	
319	*A-7060-094-A	MD-10 BOARD, COMPLETE	
320	A-7060-090-A	AU-16 BOARD, COMPLETE	
321	A-7060-091-A	YM-2 BOARD, COMPLETE	
322	A-7060-092-A	RP-29 BOARD, COMPLETE	
323	A-7060-093-A	SV-16 BOARD, COMPLETE	
324	3-563-514-00	FIBRE WASHER (B)	
325	A-7070-148-A	CONNECTOR BLOCK ASSY (A), EDGE	
326	A-7070-149-A	CONNECTOR BLOCK ASSY (B), EDGE	
327	3-695-410-01	SPRING	
328	1-616-445-11	FP-7 FLEXIBLE BOARD	

5-8. HARDWARE LIST

SDREW

7-621-255-45	SCREW +P 2X6
7-621-772-10	SCREW +B 2X4
7-627-452-28	SCREW, PRECISION +K 2X4
7-627-553-18	SCREW, PRECISION +P 2X2
7-627-553-47	SCREW, PRECISION +P 2X4
7-627-553-48	SCREW, PRECISION +P 2X4
7-627-553-77	SCREW, PRECISION +P 2X10
7-627-850-08	SCREW, PRECISION +P 1.4X2
7-627-850-17	SCREW, PRECISION +P 1.4X2.5
7-627-852-03	SCREW, PRECISION +P 1.7X2.5
7-627-852-18	SCREW, PRECISION +P 1.7X4 TYPE3
7-627-852-38	SCREW, PRECISION +P1.7X1.8TYPE3
7-627-853-27	PRECISION SCREW +P 2X3 TYPE 3
7-685-104-14	SCREW +P 2X6 TYPE2 NON-SLIT
7-685-105-19	SCREW +P 2X8 TYPE2 NON-SLIT
7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S

WASHER

7-623-951-11	WASHER 1.7, FIBER

STOP RING

7-624-101-01	STOP RING 1.2 (E TYPE)
7-624-102-04	STOP RING 1.5, TYPE -E

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part numer specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

- All resistors are in ohms
- F : nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS COILS

- MF : μF, PF : μμF
- MMH : mH, UH : μH

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
	*A-7060-206-A	B-654 (VC-4, 5, 6) CAMERA BOARD, COMPLETE ****************************			
	*A-7060-081-A	DT-60 BOARD, COMPLETE			
	*A-7060-082-A	MX-2 BOARD, COMPLETE			
	*A-7060-085-A	IA-1 BOARD, COMPLETE			
	*A-7060-087-A	SH-1 BOARD, COMPLETE			
	*A-7060-088-A	ED-11 BOARD, COMPLETE			
	*1-616-445-11	FP-7 FLEXIBLE, BOARD			
		CAPACITOR			
C681	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C682	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C683	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C684	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C685	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C686	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C687	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C696	1-124-229-00	ELECT	33MF	20%	10V
C697	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C698	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C699	1-124-234-00	ELECT	22MF	20%	16V
C700	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C701	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C702	1-124-234-00	ELECT	22MF	20%	16V
C703	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C704	1-124-234-00	ELECT	22MF	20%	16V
C705	1-124-234-00	ELECT	22MF	20%	16V
C706	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C707	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C708	1-124-222-00	ELECT	22MF	20%	6.3V
C709	1-131-388-00	TANTALUM	68MF	20%	6.3V
C710	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C711	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C712	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C713	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C714	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C715	1-135-097-21	TANTAL. CHIP	15MF	20%	10V
C716	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C717	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C734	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C771	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C772	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C773	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C774	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C775	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C776	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C777	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C778	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C779	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C780	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C782	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C783	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C784	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C785	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C786	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C788	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C789	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C790	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C791	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C792	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C793	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C794	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C801	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C802	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C803	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C804	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C805	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C953	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C954	1-124-234-00	ELECT	22MF	20%	16V
C955	1-124-584-00	ELECT	100MF	20%	10V
C956	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C957	1-124-222-00	ELECT	22MF	20%	6.3V
C958	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C959	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C960	1-124-225-00	ELECT	100MF	20%	6.3V
C961	1-124-225-00	ELECT	100MF	20%	6.3V
C962	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C963	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C964	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C965	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C966	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C967	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C968	1-135-092-21	TANTAL. CHIP	3.3MF	20%	16V
		CONNECTOR			
CN951	*1-564-014-00	PIN, CONNECTOR 4P			
		TRIMMER			
CT771	1-141-331-51	CAP, VAR, TRIMMER (CHIP)			
		DIODE			
D771	8-712-500-00	DIODE 1T25-0			
D772	8-719-100-03	DIODE 1S2835-T2			
D951	8-719-104-27	DIODE 1S2837-T2			
		DELAY LINE			
DL951	1-415-448-11	DELAY LINE			
		LOW PASS FILTER			
FL801	1-235-394-11	FILTER, LOW PASS (YH)			
FL952	1-409-401-11	COIL, TRAP			

Ref.No	Part No.	Description	Remark
		IC	
IC681	8-750-010-22	IC IUX001	
IC771	8-752-320-63	IC CXD1011Q	
IC801	8-759-914-44	IC TL431CLPB	
		COIL	
L681	1-408-960-21	MICRO INDUCTOR 1.5UH	
L682	1-408-960-21	MICRO INDUCTOR 1.5UH	
L683	1-407-165-XX	MICRO INDUCTOR 47UH	
L684	1-407-165-XX	MICRO INDUCTOR 47UH	
L685	1-408-740-00	INDUCTOR CHIP 10UH	
L771	1-408-837-00	INDUCTOR CHIP 68UH	
L801	1-408-767-21	INDUCTOR CHIP 1.5UH	
L802	1-410-337-11	MICRO INDUCTOR 1UH	
L803	1-410-337-11	MICRO INDUCTOR 1UH	
L804	1-410-337-11	MICRO INDUCTOR 1UH	
L805	1-408-730-11	INDUCTOR CHIP 1.5UH	
L952	1-407-165-XX	MICRO INDUCTOR 47UH	
L953	1-407-165-XX	MICRO INDUCTOR 47UH	
		TRANSISTOR	
Q681	8-729-100-66	TRANSISTOR 2SC1623-T2L6	
Q682	8-729-102-06	TRANSISTOR 2SC2223	
Q683	8-729-102-06	TRANSISTOR 2SC2223	
Q771	8-729-100-76	TRANSISTOR 2SA812	
Q772	8-729-100-66	TRANSISTOR 2SC1623	
Q773	8-729-100-76	TRANSISTOR 2SA812	
Q801	8-729-100-66	TRANSISTOR 2SC1623	
Q802	8-729-100-76	TRANSISTOR 2SA812	
Q951	8-729-100-66	TRANSISTOR 2SC1623	
Q952	8-729-100-66	TRANSISTOR 2SC1623	
Q953	8-729-100-66	TRANSISTOR 2SC1623	
Q954	8-729-100-66	TRANSISTOR 2SC1623	
Q955	8-729-100-76	TRANSISTOR 2SA812	
Q956	8-729-100-66	TRANSISTOR 2SC1623	
		RESISTOR	
R681	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R682	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R683	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R684	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R685	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R686	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R687	1-216-025-00	METAL CHIP 100 5% 1/10W	
R688	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R689	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R698	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R699	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R700	1-216-039-00	METAL CHIP 390 5% 1/10W	
R701	1-216-041-00	METAL CHIP 470 5% 1/10W	
R702	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R704	1-216-041-00	METAL CHIP 470 5% 1/10W	
R771	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R772	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R773	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R774	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R775	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R776	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R777	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R778	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R779	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R780	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R781	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R782	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R783	1-216-033-00	METAL CHIP 220 5% 1/10W	
R784	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R785	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R786	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R787	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R788	1-216-295-00	METAL CHIP 0 5% 1/10W	
R790	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R791	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R792	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R794	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R795	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R796	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R797	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R798	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R801	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R802	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R803	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R804	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R805	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R806	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R807	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R808	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R809	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R810	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R811	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R812	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R813	1-216-047-00	METAL CHIP 820 5% 1/10W	
R816	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R817	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R818	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R819	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R951	1-216-295-00	METAL CHIP 0 5% 1/10W	
R956	1-216-295-00	METAL CHIP 0 5% 1/10W	
R957	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R958	1-216-047-00	METAL CHIP 820 5% 1/10W	
R959	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R960	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R961	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R962	1-216-087-00	METAL CHIP 39K 5% 1/10W	
R963	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R964	1-216-079-00	METAL CHIP 18K 5% 1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R965	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R966	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R967	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R968	1-216-041-00	METAL CHIP	470	5%	1/10W	
R969	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R970	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R971	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R972	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R973	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R974	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R975	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	

VARIABLE RESISTOR

RV802	1-230-523-11	RES, ADJ, METAL GLAZE 10K

SWITCH

SW801	1-570-330-11	SWITCH, SLIDE

CRYSTAL

X681	1-567-469-21	VIBRATOR, CRYSTAL

****

*A-7060-094-A MD-10 BOARD, COMPLETE

****

1-216-075-00	METAL CHIP	12K	5%	1/10W
1-216-077-00	METAL CHIP	15K	5%	1/10W
3-695-411-01	HOLDER (B), LED			
3-697-570-01	SPRING (MD)			

CAPACITOR

Ref.No	Part No.	Description			Remark
C001	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C002	1-163-255-00	CERAMIC CHIP	150PF	5%	50V
C003	1-130-471-00	MYLAR	0.001MF	5%	50V
C004	1-163-022-00	CERAMIC CHIP	0.012MF	10%	50V
C005	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V
C006	1-124-253-00	ELECT	0.47MF	20%	50V
C007	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C050	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C052	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C101	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C102	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C103	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C105	1-163-169-00	CERAMIC CHIP	33PF	5%	50V
C106	1-163-169-00	CERAMIC CHIP	33PF	5%	50V
C107	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C108	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C110	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C111	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C112	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C113	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C114	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C115	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C116	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C117	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C118	1-124-245-00	ELECT	4.7MF	20%	16V
C119	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C120	1-124-245-00	ELECT	4.7MF	20%	16V
C121	1-163-005-00	CERAMIC CHIP	470PF	10%	50V
C122	1-163-005-00	CERAMIC CHIP	470PF	10%	50V
C123	1-163-125-00	CERAMIC CHIP	220PF	10%	50V
C125	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C130	1-124-271-00	ELECT	1MF	20%	50V
C205	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C207	1-124-233-00	ELECT	10MF	20%	16V
C211	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C212	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C213	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C214	1-135-092-21	TANTAL. CHIP	3.3MF	20%	16V
C215	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C216	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C217	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C218	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C219	1-131-371-00	TANTALUM	10MF	20%	16V
C220	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C221	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C222	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C223	1-124-236-00	ELECT	47MF	20%	10V
C224	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C225	1-124-577-11	ELECT	82MF	20%	10V
C226	1-124-577-11	ELECT	82MF	20%	10V
C227	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C228	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C230	1-124-234-00	ELECT	22MF	20%	16V
C231	1-124-275-00	ELECT	2.2MF	20%	35V
C232	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C233	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C234	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C235	1-124-577-11	ELECT	82MF	20%	10V
C236	1-124-596-11	ELECT	27MF	20%	16V
C237	1-124-596-11	ELECT	27MF	20%	16V
C238	1-124-596-11	ELECT	27MF	20%	16V
C239	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C240	1-163-020-00	CERAMIC CHIP	0.0082MF	10%	50V
C244	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C245	1-163-809-91	CERAMIC CHIP	0.047MF	10%	25V
C246	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C247	1-163-075-00	CERAMIC CHIP	0.047MF	10%	25V
C248	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C249	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C250	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C401	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C409	1-124-225-00	ELECT	100MF	20%	6.3V
C411	1-124-233-00	ELECT	10MF	20%	6.3V
C414	1-124-225-00	ELECT	100MF	20%	6.3V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
C429	1-124-225-00	ELECT	100MF	20%	6.3V
C430	1-124-225-00	ELECT	100MF	20%	6.3V
C434	1-124-224-00	ELECT	47MF	20%	6.3V
C440	1-124-225-00	ELECT	100MF	20%	6.3V
C573	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C574	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C575	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C576	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C577	1-163-034-00	CERAMIC CHIP	0.033MF		50V
C578	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C600	1-163-077-00	CERAMIC CHIP	0.1MF		50V

CONNECTOR

Ref.No	Part No.	Description
CN201	*1-564-014-00	PIN, CONNECTOR 4P
CN202	*1-506-483-21	PIN, CONNECTOR 4P
CN502	*1-506-485-11	PIN, CONNECTOR 6P
CN503	*1-506-482-11	PIN, CONNECTOR 3P

DIODE

Ref.No	Part No.	Description
D001	8-719-100-03	DIODE 1S2835
D051	8-719-101-23	DIODE 1SS123
D101	8-719-914-11	DIODE HZ4ALL
D104	8-719-200-27	DIODE E10DS2
D105	8-719-200-27	DIODE E10DS2
D106	8-719-942-32	DIODE HZ3BLL
D107	8-719-100-64	DIODE RD12EB1
D108	8-719-100-64	DIODE RD12EB1
D110	8-719-951-12	DIODE HZ5BLL
D111	8-719-927-98	DIODE PY2222S
D112	8-719-907-53	DIODE AA2222S
D117	8-719-927-97	DIODE PR2222S-B1-1
D118	8-719-927-98	DIODE PY2222S
D202	8-719-200-35	DIODE E10QS03
D203	8-719-100-03	DIODE 1S2835
D204	8-719-200-35	DIODE E10QS03

DELAY LINE

Ref.No	Part No.	Description
DL501	1-235-576-11	Y-LPF
DL502	1-415-443-11	Y-DL

IC

Ref.No	Part No.	Description
IC001	8-759-100-95	IC UPC324G2-T1
IC101	8-759-924-19	IC MB88501-376L
IC102	8-759-922-73	IC TL022CPS
IC202	8-759-202-45	IC CX20114
IC204	8-752-003-60	IC CX20036

COIL

Ref.No	Part No.	Description	Remark
L001	1-410-072-21	MICRO INDUCTOR 820UH	
L101	1-407-177-XX	MICRO INDUCTOR 470UH	
L201	1-408-785-21	INDUCTOR CHIP 47UH	
L203	1-410-126-11	COIL, CHOKE 200UH	
L204	1-410-125-11	COIL, CHOKE 100UH	
L205	1-410-126-11	COIL, CHOKE 200UH	
L207	1-407-165-XX	MICRO INDUCTOR 47UH	
L511	1-407-189-XX	MICRO INDUCTOR 15UH	
L513	1-408-948-00	MICRO INDUCTOR 220UH	

IC LINK

Ref.No	Part No.	Description
PS101⚠	1-532-685-00	LINK, IC

TRANSISTOR

Ref.No	Part No.	Description
Q001	8-729-100-66	TRANSISTOR 2SC1623
Q002	8-729-901-06	TRANSISTOR DTA144EK
Q003	8-729-100-76	TRANSISTOR 2SA812
Q004	8-729-100-76	TRANSISTOR 2SA812
Q005	8-729-901-01	TRANSISTOR DTC144EK
Q050	8-729-100-66	TRANSISTOR 2SC1623
Q051	8-729-312-22	TRANSISTOR 2SA1122C
Q101	8-729-117-54	TRANSISTOR 2SA1175
Q102	8-729-901-46	TRANSISTOR DTA114YK
Q103	8-729-100-76	TRANSISTOR 2SA812
Q104	8-729-101-07	TRANSISTOR 2SB798
Q105	8-729-101-07	TRANSISTOR 2SB798
Q106	8-729-100-76	TRANSISTOR 2SA812
Q107	8-729-199-92	TRANSISTOR 2SD999
Q108	8-729-199-92	TRANSISTOR 2SD999
Q109	8-729-100-66	TRANSISTOR 2SC1623
Q110	8-729-100-66	TRANSISTOR 2SC1623
Q111	8-729-901-06	TRANSISTOR DTA144EK
Q112	8-729-901-06	TRANSISTOR DTA144EK
Q113	8-729-901-06	TRANSISTOR DTA144EK
Q114	8-729-901-06	TRANSISTOR DTA144EK
Q116	8-729-100-66	TRANSISTOR 2SC1623
Q117	8-729-100-66	TRANSISTOR 2SC1623
Q118	8-729-901-47	TRANSISTOR DTA143EK
Q119	8-729-100-66	TRANSISTOR 2SC1623
Q120	8-729-901-06	TRANSISTOR DTA144EK
Q121	8-729-901-01	TRANSISTOR DTC144EK
Q122	8-729-100-76	TRANSISTOR 2SA812
Q123	8-729-100-76	TRANSISTOR 2SA812
Q124	8-729-100-76	TRANSISTOR 2SA812
Q125	8-729-100-76	TRANSISTOR 2SA812
Q126	8-729-100-76	TRANSISTOR 2SA812
Q127	8-729-100-76	TRANSISTOR 2SA812
Q128	8-729-901-03	TRANSISTOR DTC144WK
Q130	8-729-100-66	TRANSISTOR 2SC1623
Q131	8-729-901-03	TRANSISTOR DTC144WK
Q180	8-729-100-76	TRANSISTOR 2SA812
Q181	8-729-101-07	TRANSISTOR 2SB798
Q182	8-729-101-07	TRANSISTOR 2SB798
Q183	8-729-100-76	TRANSISTOR 2SA812
Q201	8-729-901-01	TRANSISTOR DTC144EK
Q202	8-729-100-76	TRANSISTOR 2SA812
Q207	8-729-100-66	TRANSISTOR 2SC1623
Q208	8-729-100-76	TRANSISTOR 2SA812

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

MD-10

Ref.No	Part No.	Description	Remark
Q209	8-729-100-66	TRANSISTOR 2SC1623	
Q210	8-729-100-76	TRANSISTOR 2SA812	
Q211	8-729-105-29	TRANSISTOR 2SA1385	
Q212	8-729-105-29	TRANSISTOR 2SA1385	
Q213	8-729-100-66	TRANSISTOR 2SC1623	
Q216	8-729-901-01	TRANSISTOR DTC144EK	
Q218	8-729-100-76	TRANSISTOR 2SA812	
Q510	8-729-100-76	TRANSISTOR 2SA812	
Q511	8-729-117-54	TRANSISTOR 2SA1175	

RESISTOR

Ref.No	Part No.	Description	Remark
R001	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R002	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R003	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R004	1-216-043-00	METAL CHIP 560 5% 1/10W	
R005	1-216-023-00	METAL CHIP 82 5% 1/10W	
R006	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R007	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R008	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R009	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R010	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R011	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R012	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R013	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R014	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R050	1-216-045-00	METAL CHIP 680 5% 1/10W	
R051	1-216-047-00	METAL CHIP 820 5% 1/10W	
R052	1-216-043-00	METAL CHIP 560 5% 1/10W	
R053	1-216-035-00	METAL CHIP 270 5% 1/10W	
R054	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R055	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R056	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R089	1-216-103-00	METAL CHIP 180K 5% 1/10W	
R090	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R091	1-216-045-00	METAL CHIP 680 5% 1/10W	
R092	1-216-087-00	METAL CHIP 39K 5% 1/10W	
R093	1-216-087-00	METAL CHIP 39K 5% 1/10W	
R094	1-216-304-11	METAL CHIP 3.3 5% 1/10W	
R095	1-216-304-11	METAL CHIP 3.3 5% 1/10W	
R096	1-216-304-11	METAL CHIP 3.3 5% 1/10W	
R097	1-216-304-11	METAL CHIP 3.3 5% 1/10W	
R098	1-216-021-00	METAL CHIP 68 5% 1/10W	
R101	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R102	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R103	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R105	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R106	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R107	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R108	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R109	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R110	1-216-041-00	METAL CHIP 470 5% 1/10W	
R111	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R112	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R113	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R114	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R115	1-216-041-00	METAL CHIP 470 5% 1/10W	
R116	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R117	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R118	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R119	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R120	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R121	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R122	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R123	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R124	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R125	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R126	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R127	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R128	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R129	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R130	1-216-047-00	METAL CHIP 820 5% 1/10W	
R131	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R132	1-216-047-00	METAL CHIP 820 5% 1/10W	
R133	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R134	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R135	1-216-047-00	METAL CHIP 820 5% 1/10W	
R136	1-216-047-00	METAL CHIP 820 5% 1/10W	
R137	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R138	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R139	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R140	1-216-041-00	METAL CHIP 470 5% 1/10W	
R141	1-216-017-00	METAL CHIP 47 5% 1/10W	
R142	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R143	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R144	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R145	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R146	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R147	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R148	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R149	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R150	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R151	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R152	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R153	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R154	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R155	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R156	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R157	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R158	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R159	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R160	1-216-047-00	METAL CHIP 820 5% 1/10W	
R161	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R162	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R163	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R164	1-216-107-00	METAL CHIP 270K 5% 1/10W	
R165	1-216-107-00	METAL CHIP 270K 5% 1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R166	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R167	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R168	1-216-095-00	METAL CHIP	82K	5%	1/10W	
R169	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R170	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R171	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R172	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R173	1-216-017-00	METAL CHIP	47	5%	1/10W	
R174	1-216-041-00	METAL CHIP	470	5%	1/10W	
R175	1-216-023-00	METAL CHIP	82	5%	1/10W	
R176	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R177	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R178	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R179	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R180	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R181	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R182	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R183	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R184	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R185	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R186	1-216-101-00	METAL CHIP	150K	5%	1/10W	
R187	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R188	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R189	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R190	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R191	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R193	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R194	1-216-111-00	METAL CHIP	390K	5%	1/10W	
R195	1-216-111-00	METAL CHIP	390K	5%	1/10W	
R196	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R197	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R198	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R199	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R206	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R207	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R208	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R209	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R210	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R211	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R212	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R213	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R214	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	
R215	1-216-047-00	METAL CHIP	820	5%	1/10W	
R223	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R224	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R225	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R226	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R227	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R228	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R229	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R230	1-216-070-00	METAL CHIP	7.5K	5%	1/10W	
R231	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R232	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R233	1-216-101-00	METAL CHIP	150K	5%	1/10W	
R234	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R235	1-216-025-00	METAL CHIP	100	5%	1/10W	
R236	1-216-041-00	METAL CHIP	470	5%	1/10W	
R237	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R238	1-216-041-00	METAL CHIP	470	5%	1/10W	
R249	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R253	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R254	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R257	1-216-295-00	METAL CHIP	0	5%	1/10W	
R258	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R259	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R260	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R261	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R262	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R263	1-216-025-00	METAL CHIP	100	5%	1/10W	
R264	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R265	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R266	1-216-041-00	METAL CHIP	470	5%	1/10W	
R267	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R268	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R269	1-216-298-00	METAL CHIP	2.2	5%	1/10W	
R270	1-216-298-00	METAL CHIP	2.2	5%	1/10W	
R271	1-216-298-00	METAL CHIP	2.2	5%	1/10W	
R272	1-216-298-00	METAL CHIP	2.2	5%	1/10W	
R273	1-216-304-11	METAL CHIP	3.3	5%	1/10W	
R274	1-216-304-11	METAL CHIP	3.3	5%	1/10W	
R275	1-216-304-11	METAL CHIP	3.3	5%	1/10W	
R299	1-216-295-00	METAL CHIP	0	5%	1/10W	
R424	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R529	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R578	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R579	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R580	1-216-039-00	METAL CHIP	390	5%	1/10W	
R581	1-216-045-00	METAL CHIP	680	5%	1/10W	
R582	1-216-308-00	METAL CHIP	4.7	5%	1/10W	
R591	1-216-295-00	METAL CHIP	0	5%	1/10W	

VARIABLE RESISTOR

RV101	1-230-873-21	RES, ADJ, METAL GLAZE 47K
RV102	1-230-873-21	RES, ADJ, METAL GLAZE 47K
RV202	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K
RV203	1-230-528-11	RES, ADJ, METAL GLAZE 220K

CRYSTAL

X101	1-567-192-11	OSCILLATOR, CERAMIC
X201	1-527-396-31	OSCILLATOR, CRYSTAL

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When indicating parts by reference number, please include the board name.

FP-8 FH-3 FP-14 ES-11 FP-16

Ref.No	Part No.	Description	Remark
	*A-7060-205-A	FP-8 BOARD, COMPLETE **********************	
	3-695-634-01	HOLDER, LED	
		DIODE	
D001	8-719-928-24	DIODE EE-L106	
D002	8-719-801-55	TLP907-0	
		SWITCH	
S001	1-554-942-11	SWITCH, PUSH	

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Ref.No	Part No.	Description	Remark
	*1-616-467-11	FH-3 BOARD ***********	
	3-695-436-01	PIN (A), CONTACT	
	3-695-437-01	PIN (B), CONTACT	
		CAPACITOR	
C001	1-123-321-00	ELECT 220MF 20% 16V	
		FUSE	
F001	1-532-777-21	FUSE, MICRO (SECONDARY DC)	
F002	1-532-777-21	FUSE, MICRO (SECONDARY DC)	
		COIL	
L001	1-410-337-11	MICRO INDUCTOR 1UH	
L002	1-410-337-11	MICRO INDUCTOR 1UH	
L003	1-410-337-11	MICRO INDUCTOR 1UH	
		RESISTOR	
R001	1-247-861-00	CARBON 18K 5% 1/6W	
		SWITCH	
S001	1-570-290-11	SWITCH, LEAF	

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Ref.No	Part No.	Description	Remark
		FP-14 BOARD ************	
		CAPACITOR	
C001	1-163-038-00	CERAMIC CHIP 0.1MF 25V	

****

Ref.No	Part No.	Description	Remark
	*1-616-466-11	ES-11 BOARD ************	
	*3-695-644-01	HOLDER, END SENSOR	
		TRANSISTOR	
Q001	8-729-804-28	SPS-103	

****

Ref.No	Part No.	Description	Remark
	1-616-450-11	FP-16 FLEXIBLE, BOARD **********************	
	3-695-654-01	HOLDER (A), LED	
		DIODE	
D113	8-719-927-99	DIODE PR2222S-C3	
D114	8-719-927-99	DIODE PR2222S-C3	
D115	8-719-928-00	DIODE PY2222S-C3	
D116	8-719-907-53	DIODE AA2222S-C3	

****

Ref.No	Part No.	Description	Remark
		MISCELLANEOUS *************	
	1-464-519-11	CONVERTER UNIT, DC-DC	
	1-535-574-11	TERMINAL, SHAFT GROUND	
	1-547-187-11	OVF	
	1-547-188-11	LENS	
	1-547-190-11	IRIS, RING	
	1-558-160-11	SOCKET, CONNECTOR	
	1-807-238-11	SENSOR, DEW CONDENSATION	
	8-810-511-90	C-2009 SET (MIC)	
M901	A-7040-051-A	MOTOR BLOCK ASSY, LM	
M902	8-838-103-01	MOTOR, DC (BHF-3300A) (CAPSTAN)	
RV001	1-230-873-11	RES, ADJ, METAL GLAZE 47K	
S101	1-553-226-00	SWITCH, LEAF (EJECT SW)	
S901	1-553-198-00	SWITCH, LEAF (LENS DOOR SW)	
S902	1-553-226-00	SWITCH, LEAF (CCD SW)	

****

ACCESSORIES AND PACKING MATERIALS
****

Part No.	Description	Remark
*X-3686-741-1	INDIVIDUAL CARTON ASSY (US,CANADIAN MOD	
*X-3686-742-1	INDIVIDUAL CARTON ASSY (E MODEL)	
*X-3686-712-1	INDIVIDUAL CARTON (LOWER) ASSY (US, CANADIAN MODE	
*X-3686-719-1	INDIVIDUAL CARTON (LOWER) ASSY (E MODE	
3-695-503-01	BELT, STRAP	
*3-695-743-11	INDIVIDUAL CARTON (LOWER) (US, CANADIAN MOD	
*3-695-743-31	INDIVIDUAL CARTON (LOWER) (E MODEL)	
*3-695-745-11	INDIVIDUAL CARTON (UPPER) (US, CANADIAN MODE	
*3-695-745-31	INDIVIDUAL CARTON (UPPER) (E MODEL)	
3-701-625-00	BAG, POLYETHYLENE	
3-760-735-21	MANUAL, INSTRUCTION (US MODEL)	
3-760-735-31	MANUAL, INSTRUCTION (CANADIAN MODEL)	
3-795-581-21	INSTRUCTION (US MODEL)	

****

When indicating parts by reference number, please include the board name.

CCD-M8/M8u

SONY®
SERVICE MANUAL

US Model
Canadian Model
CCD-M8u
E Model
CCD-M8
November, 1985

SUPPLEMENT-1

File this supplement with the service manual.

SUBJECT: ADJUSTEMNT

MICROFILM

Consumer
VIDEO

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1-2. PREPARATIONS

For the cabinet and individual boards dismounting process, refer to 2.

1) Set White Balance Switch at 💡 (indoors) unless otherwise specified.
2) Arrange for All White Pattern to make the entire Monitor Screen White.
3) For an All Black Image, fasten a piece of black paper with adhesive tapes or equivalent to cover the Lens front.

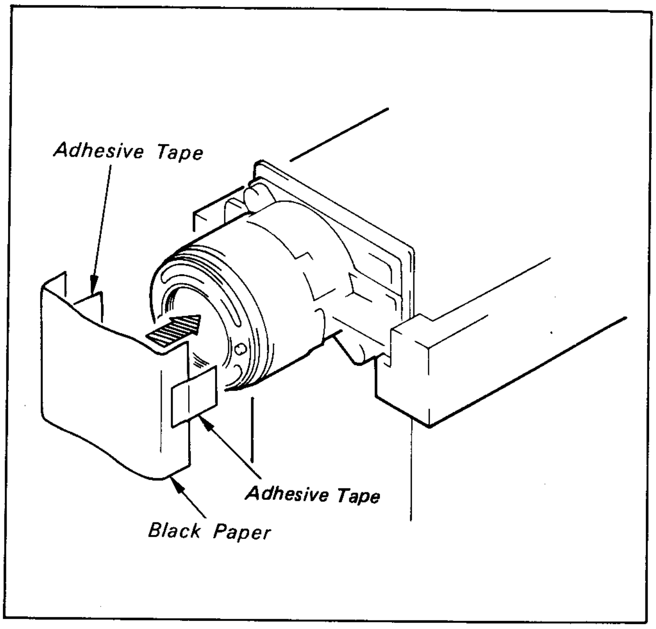

Adhesive Tape
Adhesive Tape
Black Paper

Fig. 1-3

4) Pull CN951 off VC-6 Board, and by connecting Extension Cable (4P) in between, set CCD-M8/M8u on M8 Repair Bench. (See Fig. 1-4)

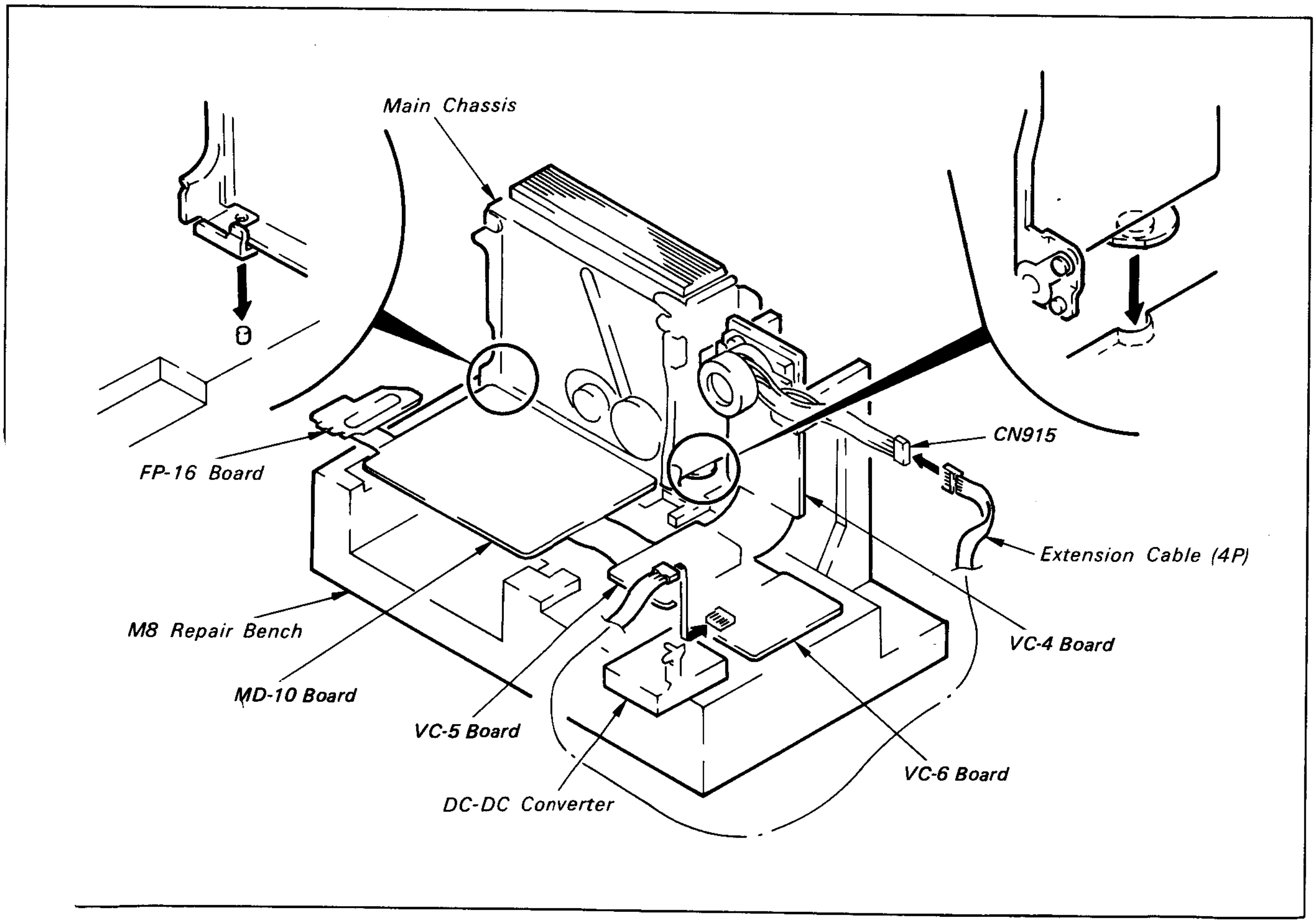

Main Chassis
CN915
FP-16 Board
Extension Cable (4P)
M8 Repair Bench
VC-4 Board
MD-10 Board
VC-5 Board
VC-6 Board
DC-DC Converter

Fig. 1-4

1. CAMERA ADJUSTMENTS

PRE-ADJUSTMENT PREPARATIONS (CAMERA SECTION)

1-1. LIST OF SERVICE JIGS

- Oscilloscope
- Adjusting Screwdrivers
- Color Monitor
- L Wrenches

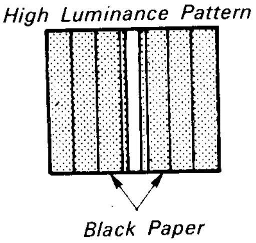
Ref. No.	Name	Part Code	Purpose
J-1	ND Filter 0.4	J-6080-806-A	LLA Adjustment
	ND Filter 1.0	J-6080-808-A	LLA Adjustment
	ND Filter 0.9	J-6080-833-A	Max. Gain Adjust. LLA Adjust
J-2	PTB-100 Pattern Box	J-6020-490-A	
J-3	Color Chart for Pattern Box	J-6020-250-A	
J-4	M8 Repair Bench	J-6080-847-A	
J-5	Iris Extension Cable (4P)	J-6080-846-A	
J-6	Track Shifting and Monitoring Jig	J-6080-843-A	
Have a below described jig prepared for yourselves.  *Cover Color-bar Chart J-3 with black paper except half the width of its white bar, for shooting in a standard pattern frame.*			White Clip Adjustment (2)

Fig. 1-1

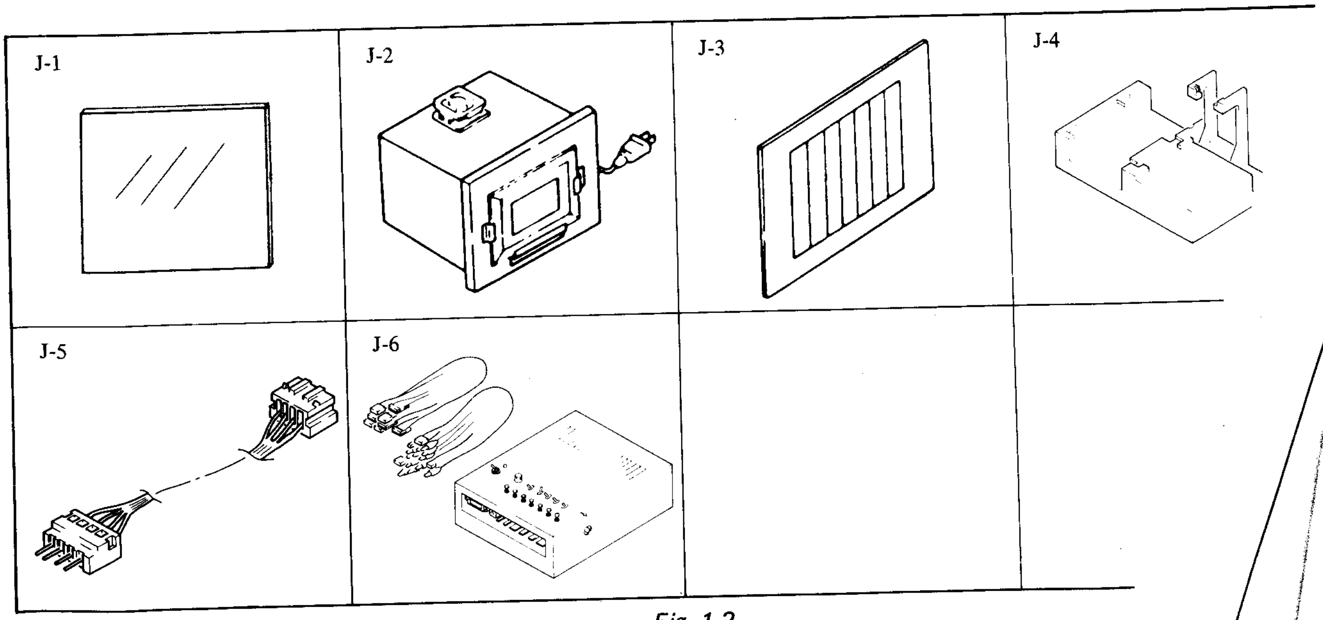
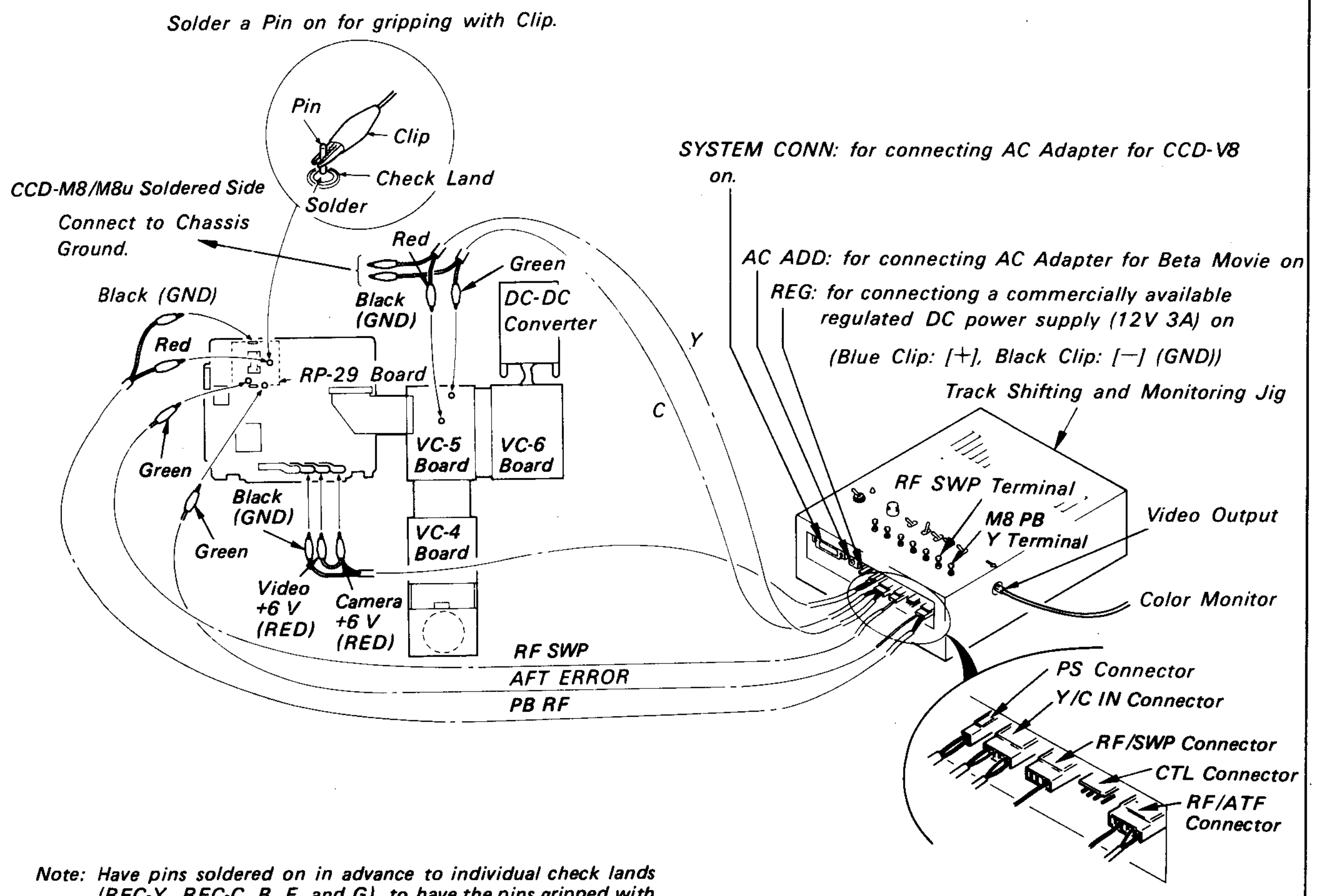


Fig. 1-2

1-3. TRACK SHIFTING AND MONITORING JIG CONNECTING PROCEDURE

1) Connection Diagram


Solder a Pin on for gripping with Clip.
Pin
Clip
Check Land
Solder
CCD-M8/M8u Soldered Side
Connect to Chassis Ground.
Black (GND)
Red
Red
Black (GND)
Green
DC-DC Converter
RP-29 Board
VC-5 Board
VC-6 Board
VC-4 Board
Green
Black (GND)
Green
Video +6 V (RED)
Camera +6 V (RED)
RF SWP
AFT ERROR
PB RF
Y
C
SYSTEM CONN: for connecting AC Adapter for CCD-V8 on.
AC ADD: for connecting AC Adapter for Beta Movie on
REG: for connectiong a commercially available regulated DC power supply (12V 3A) on
(Blue Clip: [+], Black Clip: [−] (GND))
Track Shifting and Monitoring Jig
RF SWP Terminal
M8 PB Y Terminal
Video Output
Color Monitor
PS Connector
Y/C IN Connector
RF/SWP Connector
CTL Connector
RF/ATF Connector

Note: Have pins soldered on in advance to individual check lands (REC-Y, REC-C, B, F, and G), to have the pins gripped with clips.

Fig. 1-5

i) Supply power to Power Supply Connector (PS IN) as follows (see Fig. 1-5):

SYSTEM CONN: Connect the AC-V8UC on that has been modifed by paragraph 3) Modifying Procedure.

REG: Connect a commercially available 12V 3A regulated DC power supply on.

Connect Blue Clip to its (+) positive end and Black Clip to its (−) negative end (GND), and operate it at about 8 V.

Note:

Priorities have been assigned to the three above connectors, where SYSTEM CONN carries the highest priority and REG the lowest.

Accordingly, even where they have been connected on together, power will be supplied to SYSTEM CONN.

ii) PS is the connector that supplies power to CCD-M8/M8u. Connect one of its two red clips to the +B line of Camera, the other to that of Video Block, and its black clip to GND (see Fig. 1-5).

iii) Y/C is the connector for fetching luminance and chrominance signals from Camera. Connect its red clip to REC-Y on VC-5 Board, its green chip to REC-C, and its black clip to GND (see Fig. 1-5).

iv) RF/SWP is the connector for fetching just RF SWP in the case of CCD-M8/M8u. Connect its green clip to check land B (RF SWP) on M-10 Board (see Fig. 1-5).

v) RF/ATF is the connector for fetching the PBY RF signal and supplying the ATF ERROR signal for track shifting. Connect its green clip to check land F on M-10 Board, its red clip to check land G, and its black clip to GND (see Fig. 1-5).

Note:

Connect the above GND to the shielding case of RP-29 board.

vi) Connect jack VIDEO OUT and VIDEO IN of Monitor together with a pin-jack cable.

2) Switch

Set switch VTR/CMR at VTR in a REC mode, or at CMR in a stand-by mode.

3) AC-V8UC (AC Adapter for CCD-V8) Modifying Procedure

i) Remove two screws ❶ and two screws ❷, and dismount Upper Housing (see Fig. 1-6).

ii) Short pins ⑱ and ㉑ of IC5 on SB-F Board by soldering lead wire, etc.

iii) Mount Upper Housing back on, and tighten two screws ❶ and two screws ❷ (see Fig. 1-6).

Note:

- **When connecting AC-V8 to Track Shifting and Monitoring Jig, be sure to modify it by the above steps in advance.**
- **When power is supplied with a modified AC-V8, a little time will be required for the supply voltage to drop after pushing the AC-V8 switch off.**

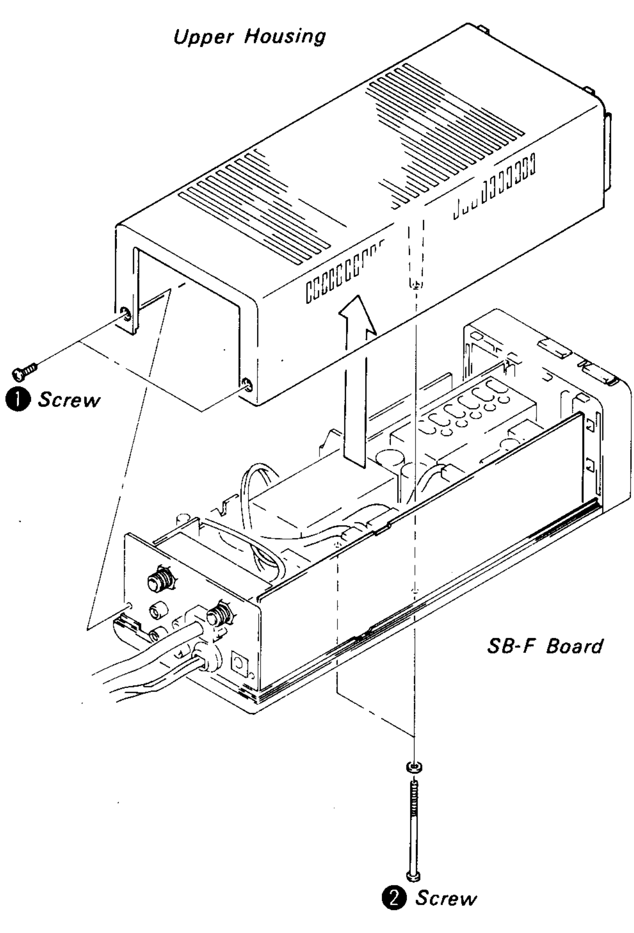

Upper Housing
❶ Screw
SB-F Board
❷ Screw

Fig. 1-6

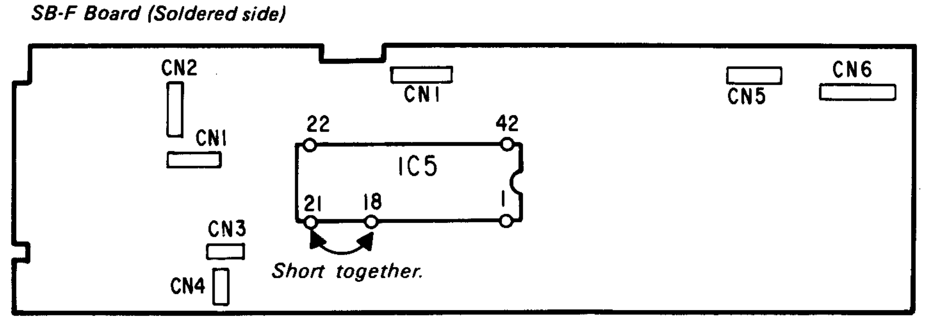
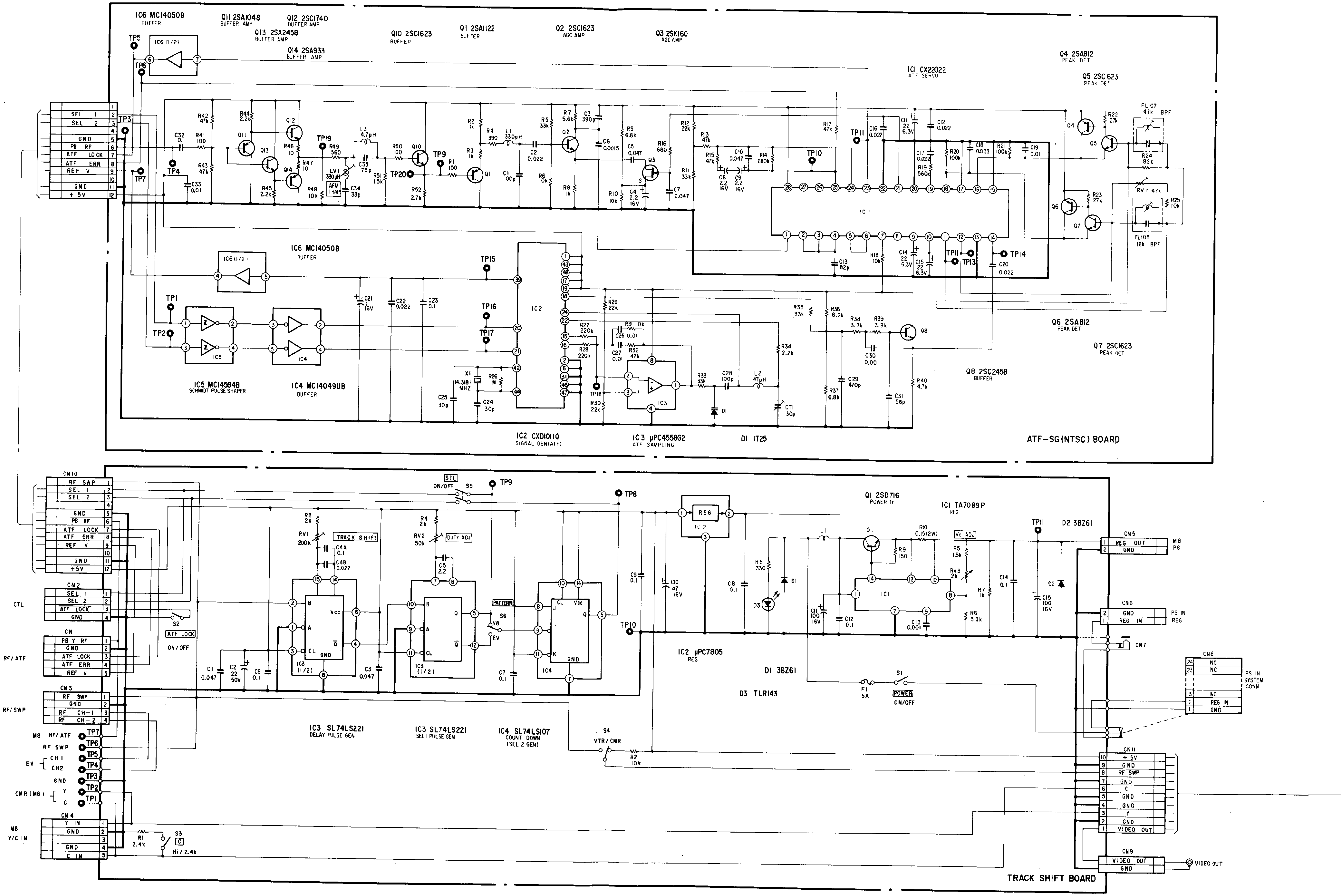
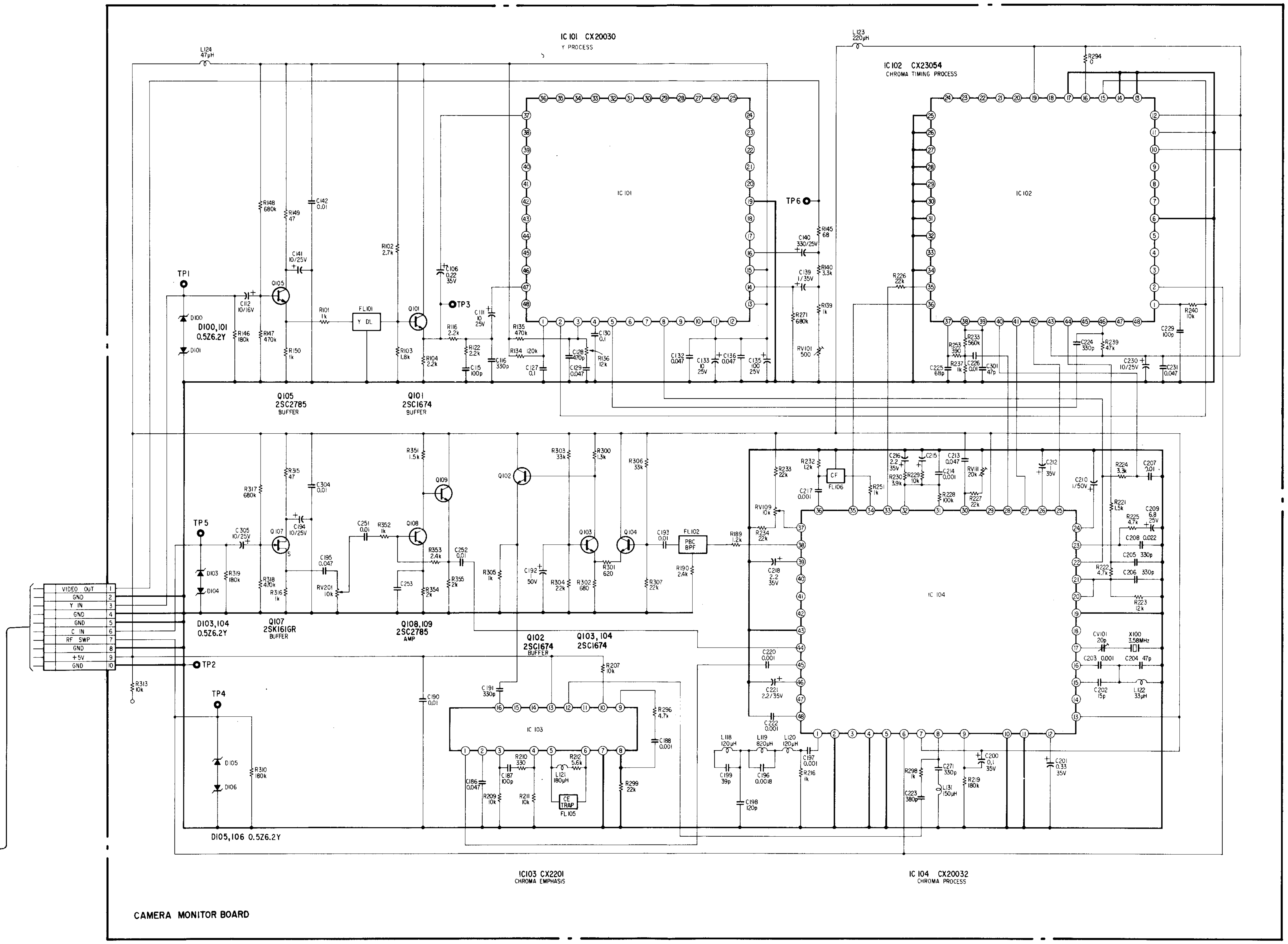

SB-F Board (Soldered side)
CN2
CN1
CN1
CN3
CN4
CN5
CN6
22
42
IC5
21
18
1
Short together.

Fig. 1-7

4) Circuit Diagram of Track Shifting and Monitoring Jig


IC6 MC14050B BUFFER
Q11 2SA1048 BUFFER AMP
Q12 2SC1740 BUFFER AMP
Q13 2SA2458 BUFFER AMP
Q14 2SA933 BUFFER AMP
Q10 2SC1623 BUFFER
Q1 2SA1122 BUFFER
Q2 2SC1623 AGC AMP
Q3 2SK160 AGC AMP
Q4 2SA812 PEAK DET
Q5 2SC1623 PEAK DET
IC1 CX22022 ATF SERVO
FL107 47k BPF
FL108 16k BPF
IC6 MC14050B BUFFER
IC5 MC14584B SCHMIDT PULSE SHAPER
IC4 MC14049UB BUFFER
Q6 2SA812 PEAK DET
Q7 2SC1623 PEAK DET
Q8 2SC2458 BUFFER
IC2 CXD1011Q SIGNAL GEN(ATF)
IC3 μPC4558G2 ATF SAMPLING
D1 1T25
ATF-SG(NTSC) BOARD
SEL 1
SEL 2
GND
PB RF
ATF LOCK
ATF ERR
REF V
GND
+5V
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP9
TP10
TP11
TP13
TP14
TP15
TP16
TP17
TP18
TP19
TP20
X1 14.3181 MHZ
AFM TRAP
CN10
RF SWP
CTL
CN2
CN1
PB Y RF
RF/ATF
CN3
RF/SWP
RF CH-1
RF CH-2
M8 RF/ATF
RF SWP
EV CH1 CH2
GND
CMR(M8) Y C
CN4
Y IN
C IN
M8 Y/C IN
S1 POWER ON/OFF
S2 ATF LOCK ON/OFF
S3 C Hi/2.4k
S4 VTR/CMR
S5 SEL ON/OFF
S6 PATTERN V8 EV
RV1 200k TRACK SHIFT
RV2 50k DUTY ADJ
RV3 2k Vc ADJ
IC3 SL74LS221 DELAY PULSE GEN
IC3 SL74LS221 SEL1 PULSE GEN
IC4 SL74LS107 COUNT DOWN (SEL 2 GEN)
IC2 μPC7805 REG
D1 3BZ61
D3 TLR143
Q1 2SD716 POWER Tr
IC1 TA7089P REG
D2 3BZ61
F1 5A
CN5 REG OUT GND M8 PS
CN6 GND REG IN PS IN REG
CN7
CN8 NC NC NC REG IN GND PS IN SYSTEM CONN
CN11 +5V GND RF SWP GND C GND GND Y GND VIDEO OUT
CN9 VIDEO OUT GND
VIDEO OUT
TRACK SHIFT BOARD


IC101 CX20030
Y PROCESS
IC102 CX23054
CHROMA TIMING PROCESS
IC103 CX2201
CHROMA EMPHASIS
IC104 CX20032
CHROMA PROCESS
Q105
2SC2785
BUFFER
Q101
2SC1674
BUFFER
Q107
2SK161GR
BUFFER
Q108,109
2SC2785
AMP
Q102
2SC1674
BUFFER
Q103,104
2SC1674
D100,101
0.5Z6.2Y
D103,104
0.5Z6.2Y
D105,106 0.5Z6.2Y
TP1
TP2
TP3
TP4
TP5
TP6
FL101
Y DL
FL102
PBC BPF
FL105
CE TRAP
FL106
CF
X100
3.58MHz
L124 47μH
L123 220μH
VIDEO OUT 1
GND 2
Y IN 3
GND 4
GND 5
C IN 6
RF SWP 7
GND 8
+5V 9
GND 10
CAMERA MONITOR BOARD

5) Parts List of Track Shifting and Monitoring Jig

• CAMERA MONITOR BOARD

Ref. No.	Part No.	Description
		TRIMMER
CV101		TRIMMER, CAPACITOR 20PF
		DIODE
D100	8-719-100-38	DIODE 0.5Z6.2Y RD6.2EB2
D101	8-719-100-38	DIODE 0.5Z6.2Y RD6.2EB2
D103	8-719-100-38	DIODE 0.5Z6.2Y RD6.2EB2
D104	8-719-100-38	DIODE 0.5Z6.2Y RD6.2EB2
D105	8-719-100-38	DIODE 0.5Z6.2Y RD6.2EB2
D106	8-719-100-38	DIODE 0.5Z6.2Y RD6.2EB2
		FILTER
FL102	1-235-397-11	PBC BPF
FL105	1-409-386-11	CE TRAP
FL106	1-567-306-11	FILTER, CERAMIC 4.32MHz
		IC
IC101	8-752-003-00	IC CX20030
IC102	8-759-914-56	IC CX23054
IC103	8-752-202-10	IC CX22021
IC104	8-752-003-20	IC CX20032
		COIL
L118	1-408-983-21	MICRO INDUCTOR 120µH
L119	1-410-072-21	MICRO INDUCTOR 820µH
L120	1-408-983-21	MICRO INDUCTOR 120µH
L121	1-408-985-11	MICRO INDUCTOR 180µH
L122	1-408-976-21	MICRO INDUCTOR 33µH
L123	1-408-948-00	MICRO INDUCTOR 220µH
L124	1-408-978-21	MICRO INDUCTOR 47µH
L131	1-408-984-21	MICRO INDUCTOR 150µH
		TRANSISTOR
Q101	8-729-190-12	TRANSISTOR 2SC2901K
Q102	8-729-190-12	TRANSISTOR 2SC2901K
Q103	8-729-190-12	TRANSISTOR 2SC2901K
Q104	8-729-190-12	TRANSISTOR 2SC2901K
Q105	8-729-214-71	TRANSISTOR 2SK161GR
Q107	8-729-214-71	TRANSISTOR 2SK161GR
Q108	8-729-245-83	TRANSISTOR 2SC2785
Q109	8-729-245-83	TRANSISTOR 2SC2785

• TRACK SHIFT BOARD

Ref. No.	Part No.	Description
		CONNECTOR
CN1	1-564-030-11	CONNECTOR
CN2	1-564-029-11	CONNECTOR
CN3	1-564-029-31	CONNECTOR
CN4	1-564-030-41	CONNECTOR
CN5	1-564-027-11	CONNECTOR
CN6	1-564-027-11	CONNECTOR
CN7	1-507-886-00	DC JACK
CN8	1-562-582-11	CONNECTOR
CN9	1-507-945-11	CONNECTOR
CN10	1-560-900-11	CONNECTOR
CN11	1-560-898-11	CONNECTOR
		DIODE
D1	1-800-987-11	DIODE 3BZ61
D2	1-800-987-11	DIODE 3BZ61
D3	8-719-800-32	DIODE TLR143
		IC
IC1		IC TA7089P
IC2	8-759-171-05	IC µPC7805
IC3	8-759-902-21	IC SN74LS221
IC4	8-759-901-07	IC SN74LS107
		TRANSISTOR
Q1		TRANSISTOR 2SD716

• ATF-SG (NTSC) BOARD

Ref. No.	Part No.	Description
		DIODE
D1	8-719-922-50	DIODE IT25
		FILTER
FL107	1-235-396-11	FILTER
FL108	1-235-395-11	FILTER
		IC
IC1	8-752-202-20	IC CX22022
IC2	8-752-320-29	IC CXD1011Q
IC3	8-759-145-58	IC µPC4558
IC4	8-759-240-49	IC TC4049BP
IC5	8-759-145-84	IC TC4584BP
IC6	8-759-240-50	IC TC4050BP
		COIL
L1	1-408-795-21	MICRO INDUCTOR 330µH
L2	1-408-785-21	MICRO INDUCTOR 47µH
L3	1-408-599-11	MICRO INDUCTOR 4.7µH
		VARIABLE COIL
LV3	1-459-548-11	COIL (VARIABLE) 330µH
		TRANSISTOR
Q1	8-729-312-22	TRANSISTOR 2SA1122
Q2	8-729-100-66	TRANSISTOR 2SC1623
Q3	8-729-116-04	TRANSISTOR 2SK160
Q4	8-729-100-76	TRANSISTOR 2SA812
Q5	8-729-100-66	TRANSISTOR 2SC1623
Q6	8-729-100-76	TRANSISTOR 2SA812
Q7	8-729-100-66	TRANSISTOR 2SC1623
Q8	8-729-245-83	TRANSISTOR 2SC2458
Q10	8-729-100-66	TRANSISTOR 2SC1623
Q11	8-729-612-77	TRANSISTOR 2SA1048
Q12	8-729-600-27	TRANSISTOR 2SC1740
Q13	8-729-245-83	TRANSISTOR 2SC2458
Q14	8-729-901-52	TRANSISTOR 2SA933
		CRYSTAL
X1	1-527-227-12	CRYSTAL 14.31818MHz

1-4. SETTING UP

1) Set CCD-M8/M8u up as shown in Fig. 1-8, that has been set on M8 Repair Bench.

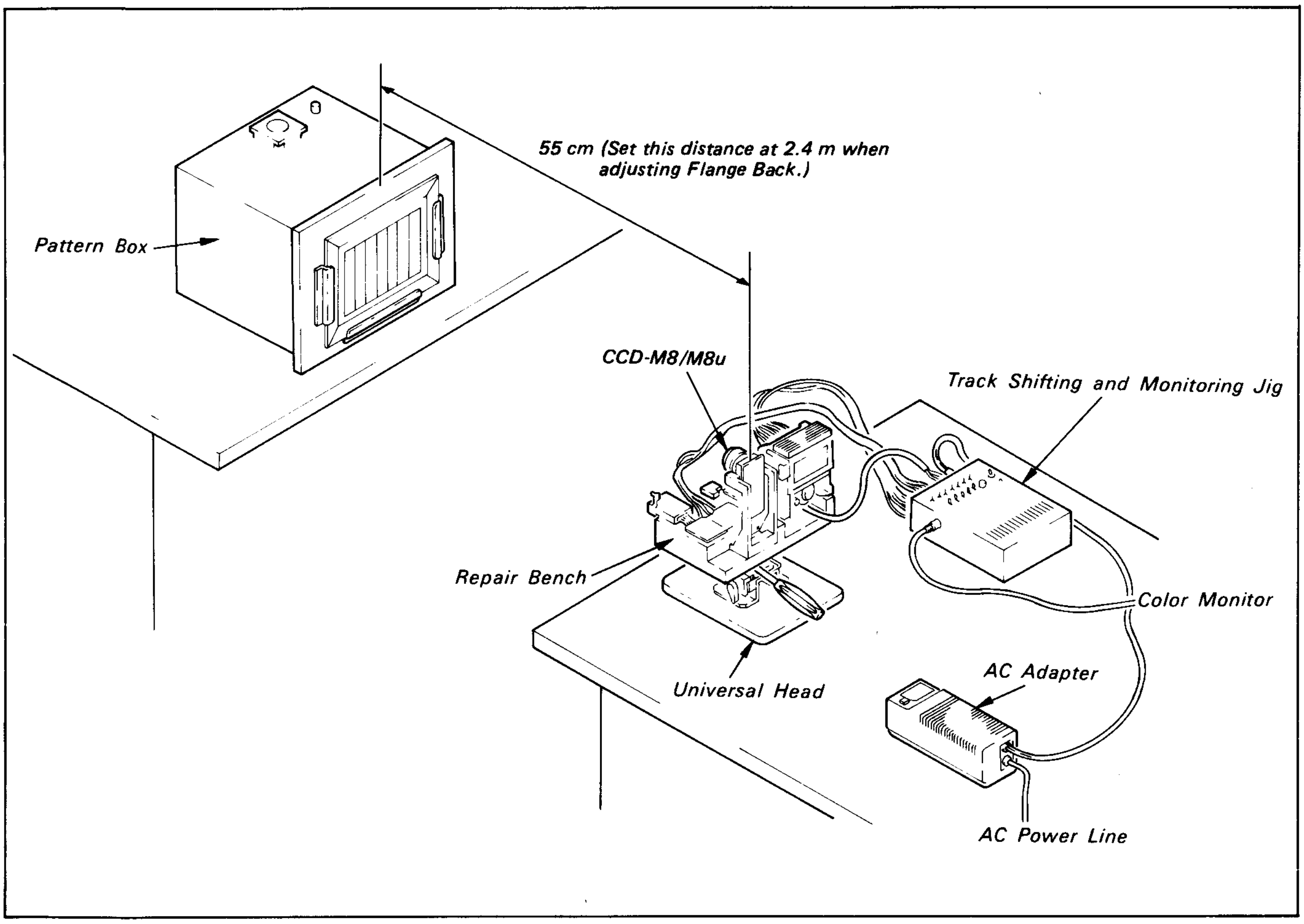

55 cm (Set this distance at 2.4 m when adjusting Flange Back.)
Pattern Box
CCD-M8/M8u
Track Shifting and Monitoring Jig
Repair Bench
Color Monitor
AC Adapter
Universal Head
AC Power Line

Fig. 1-8

2) When setting CCD-M8/M8u up on a work bench, use a universal head such as shown in Fig. 1-9.

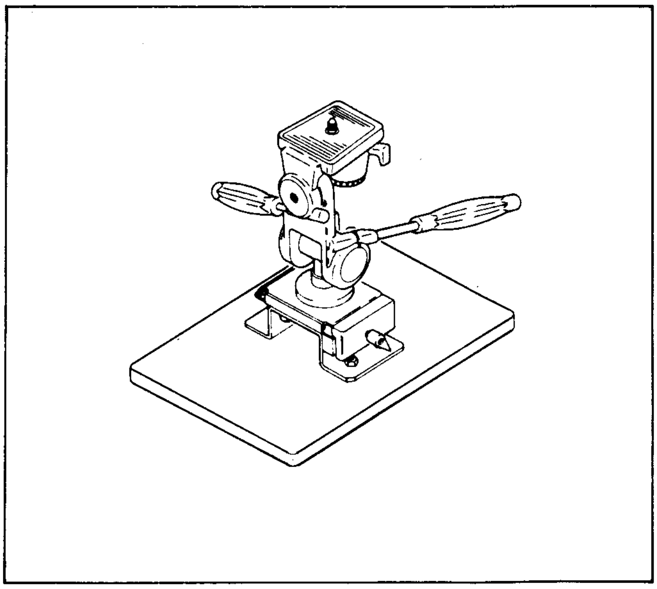
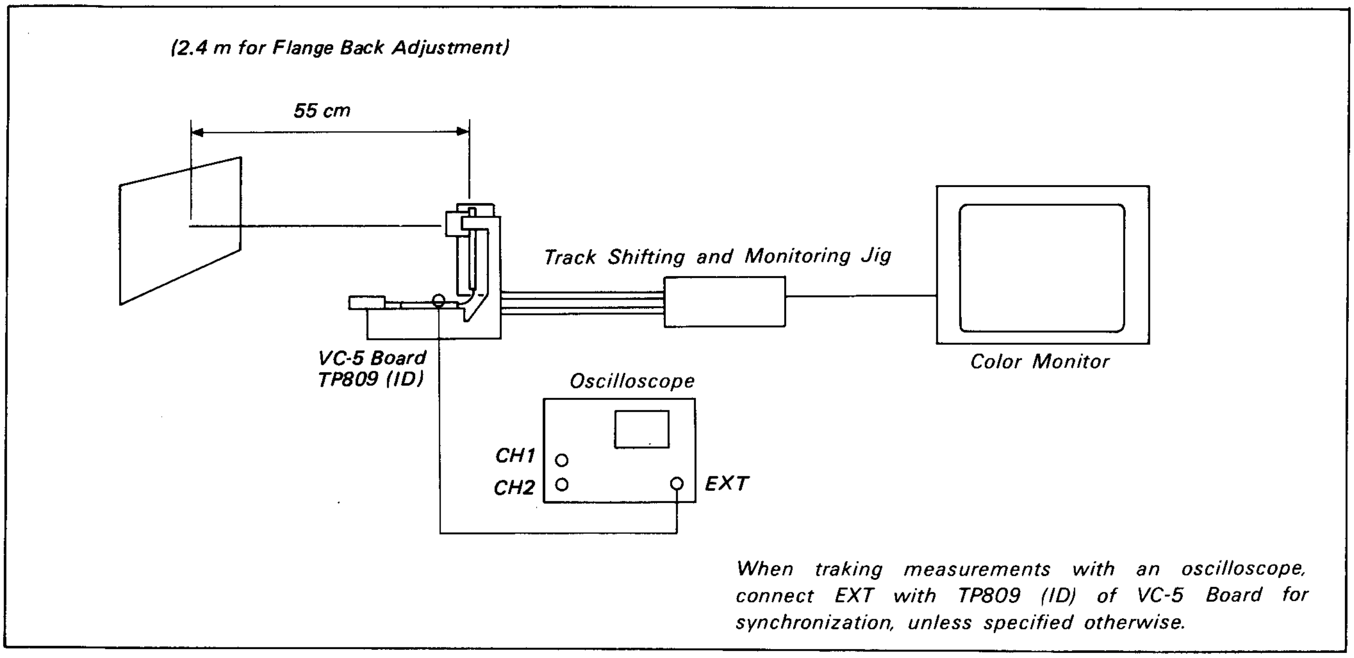


Fig. 1-9

3) Connection Diagram


(2.4 m for Flange Back Adjustment)
55 cm
Track Shifting and Monitoring Jig
VC-5 Board
TP809 (ID)
Oscilloscope
Color Monitor
CH1
CH2
EXT

When traking measurements with an oscilloscope, connect EXT with TP809 (ID) of VC-5 Board for synchronization, unless specified otherwise.

Fig. 1-10

1-5. ITEMS OF CAUTION

1) When making adjustments by the use of a color bar chart, have the pattern frame adjusted in advance as shown in Fig. 1-11 (Standard Pattern Frame).
2) For the cabinet and individual boards dismounting process refer to 2. DISASSEMBLY.

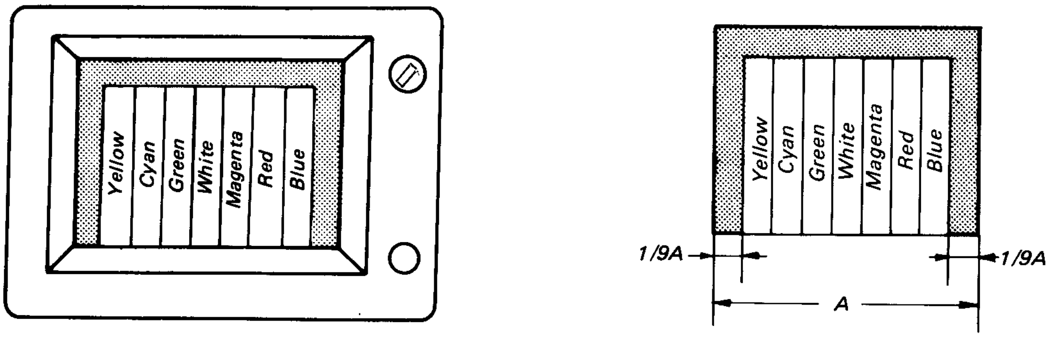

Yellow
Cyan
Green
White
Magenta
Red
Blue
Yellow
Cyan
Green
White
Magenta
Red
Blue
1/9A
1/9A
A

Fig. 1-11

3) When making adjustments, be sure to short (for an ON position of) LENS DOOR SW (S901) with a clip or equivalent first, before engaging REC (record), Stand-by, and PB (Playback) (for the tape path adjustment or similar) modes (see Fig. 1-12).

4) For recording and stand-by modes, momentarily short REC SW on M-10 Board to GND by actuating its contact spring to engage a REC mode, and short it again to engage a stand-by mode.
Repeating this process will set REC and Stand-by alternately and cyclically (see Fig. 1-12).

5) To take the cassette out, short EJECT SW (S101) in a stand-by mode to have the cassette ejected (see Fig. 1-12).

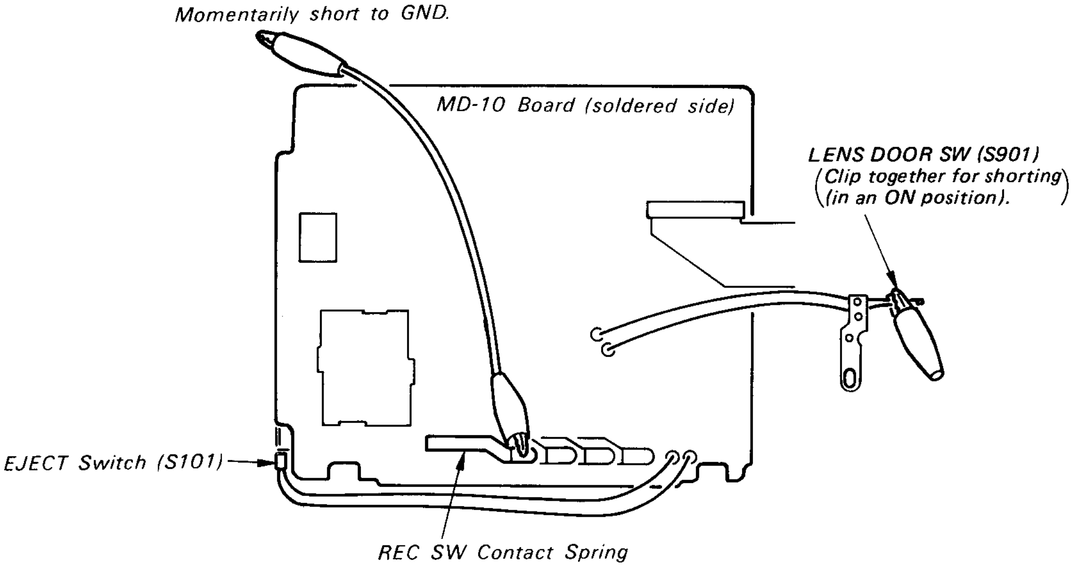
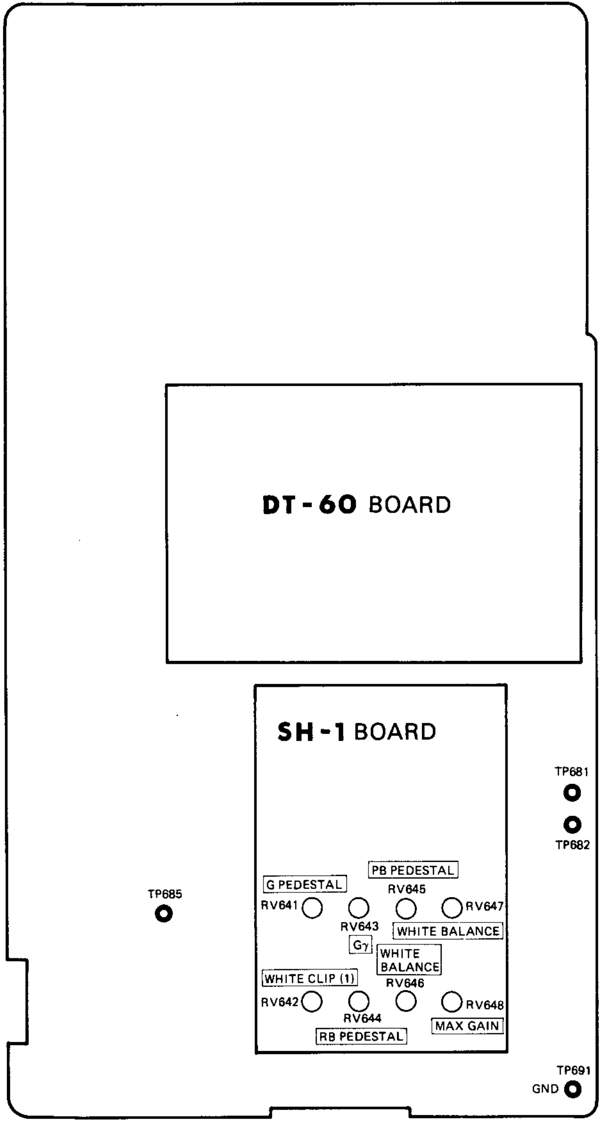

Momentarily short to GND.
MD-10 Board (soldered side)
LENS DOOR SW (S901)
(Clip together for shorting (in an ON position).)
EJECT Switch (S101)
REC SW Contact Spring

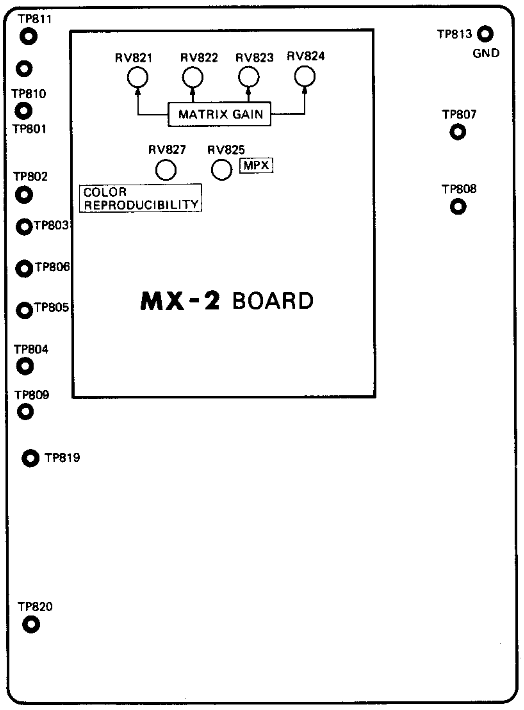
Fig. 1-12

1-6. SERVICING LOCATIONS

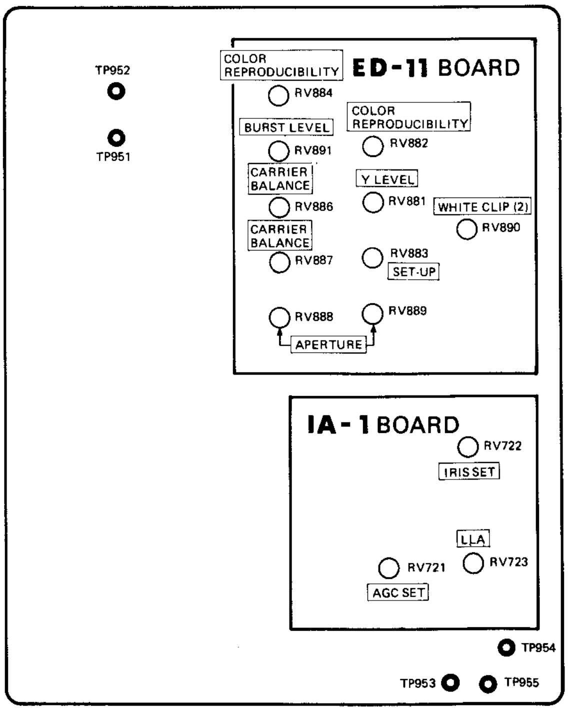
VC-4 BOARD (COMPONENT SIDE)


DT-60 BOARD
SH-1 BOARD
TP681
TP682
TP685
G PEDESTAL
PB PEDESTAL
RV645
RV641
RV647
RV643
WHITE BALANCE
Gγ
WHITE BALANCE
WHITE CLIP (1)
RV646
RV642
RV648
RV644
MAX GAIN
RB PEDESTAL
TP691
GND

VC-5 BOARD (COMPONENT SIDE)


TP811
TP810
TP801
TP802
TP803
TP806
TP805
TP804
TP809
TP819
TP820
RV821
RV822
RV823
RV824
MATRIX GAIN
RV827
RV825
MPX
COLOR REPRODUCIBILITY
MX-2 BOARD
TP813
GND
TP807
TP808

VC-6 BOARD (COMPONENT SIDE)


TP952
TP951
COLOR REPRODUCIBILITY
ED-11 BOARD
RV884
COLOR REPRODUCIBILITY
BURST LEVEL
RV891
RV882
CARRIER BALANCE
Y LEVEL
RV886
RV881
WHITE CLIP (2)
RV890
CARRIER BALANCE
RV887
RV883
SET-UP
RV888
RV889
APERTURE
IA-1 BOARD
RV722
IRIS SET
LLA
RV721
RV723
AGC SET
TP954
TP953
TP955

1-7. FLANGE BACK ADJUSTMENT

Equipment required: Siemens Star
Track Shifting and Monitoring Jig
Philips Head Screwdriver

Adjusting Procedure:

1) Position a Siemens star at 2.4m in front of Lens, and adjust its center to coincide with the Monitor Screen center.
2) Engage a state where the under-illuminance LED in the viewfinder (lower right) glows and the Siemens star sppears on Monitor Screen, and while watching the monitored image, turn Lens for a most clearly displayed center wedge (i.e. to have it just focused).
3) Fasten F Ring to Lens with two screws ① to position the F Ring pin rightward (to the due right) as viewed toward the Lens front (see Fig. 1-13).

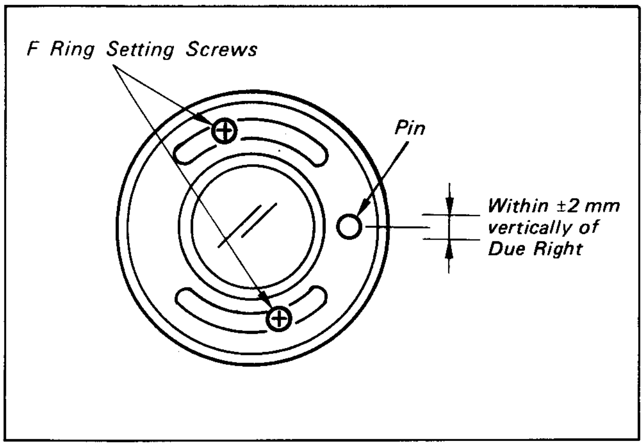


Fig. 1-13

1-8. IRIS SETTING ADJUSTMENT

Equipment required: Oscilloscope
VC-4 Board TP681

Object: Color Bar Chart (in Standard Pattern Frame)

Adjusting Procedure: By turning RV722 on IA-1 Board, adjust the signal level at 185±5 mVp-p (see Fig. 1-14).

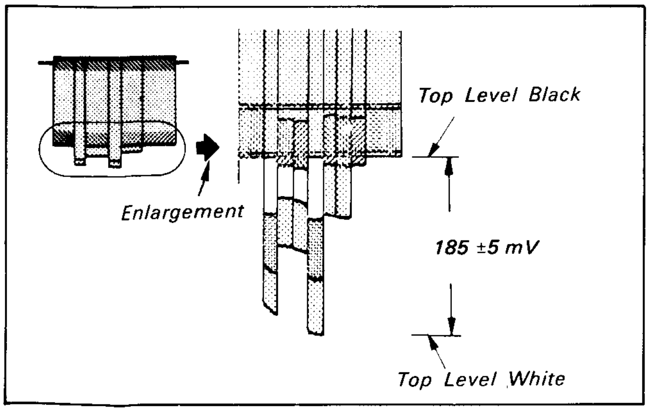


Fig. 1-14

1-9. AGC SETTING ADJUSTMENT

Equipment required: Oscilloscope
VC-5 Board TP810

Object: Totally Black (Lens covered with a black cap)

Adjusting Procedure: By turning RV721 on IA-1 Board, adjust the signal level at 200±5 mVp-p (see Fig. 1-15).

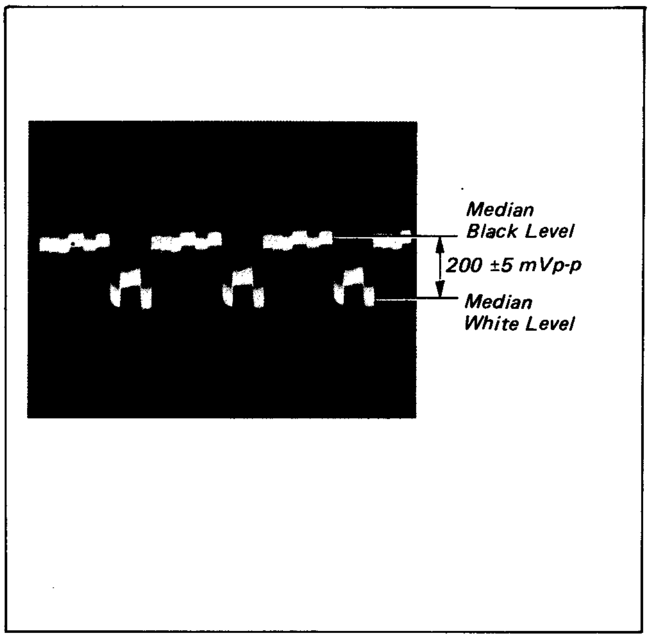


Fig. 1-15

1-10. G PEDESTAL ADJUSTMENT (1)

Equipment required: Oscilloscope
VC-5 Board TP810

Object: Totally Black (Lens covered with a black cap)

Adjusting Procedure: By turning RV641 on SH-1 Board, adjust the pedestal level at 50±5 mVp-p (see Fig. 1-16).

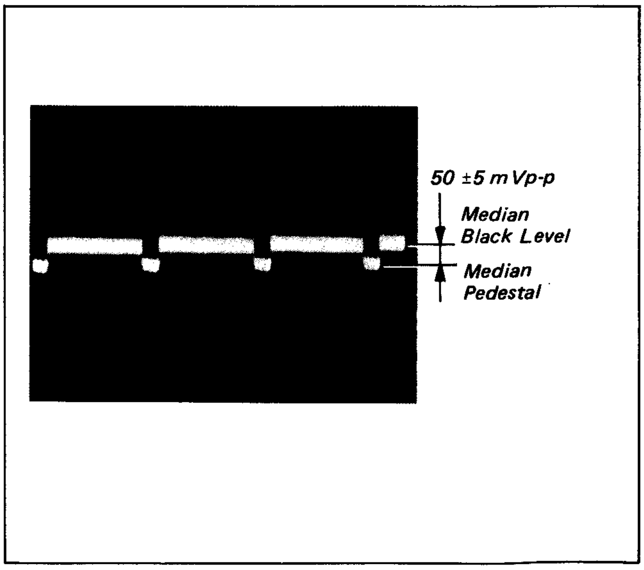


Fig. 1-16

1-11. G GAMMA ADJUSTMENT

Equipment required: Oscilloscope
VC-5 Board TP810

Object: Color Bar Chart (in Standard Pattern Frame)

Adjusting Procedure: By turning RV643 on SH-1 Board, adjust the signal level at 380±5 mVp-p (see Fig. 1-17).

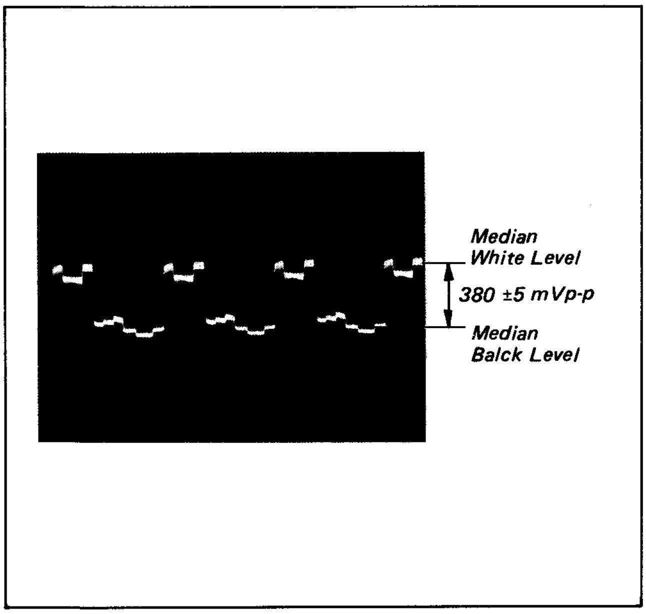


Fig. 1-17

1-12. WHITE CLIP ADJUSTMENT (1)

Equipment required: Oscilloscope
VC-5 Board TP810

Object: Color Bar Chart (in Standard Pattern Frame)

Adjusting Procedure: By turning RV642 on SH-1 Board (that has been preset by G Pedestal Adjustment (1)), adjust the signal level at 360±5 mVp-p (see Fig. 1-18).

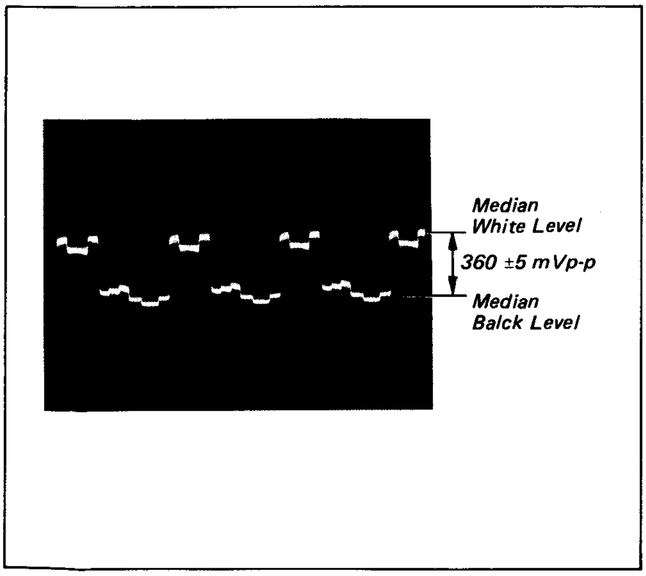


Fig. 1-18

1-13. G PEDESTAL ADJUSTMENT (2)

Equipment required: Oscilloscope
VC-5 Board TP810

Object: Totally Black (Lens covered with a black cap)

Adjusting Procedure: By turning RV641 on SH-1 Board, adjust the pedestal level at 30±5 mVp-p (see Fig. 1-19).

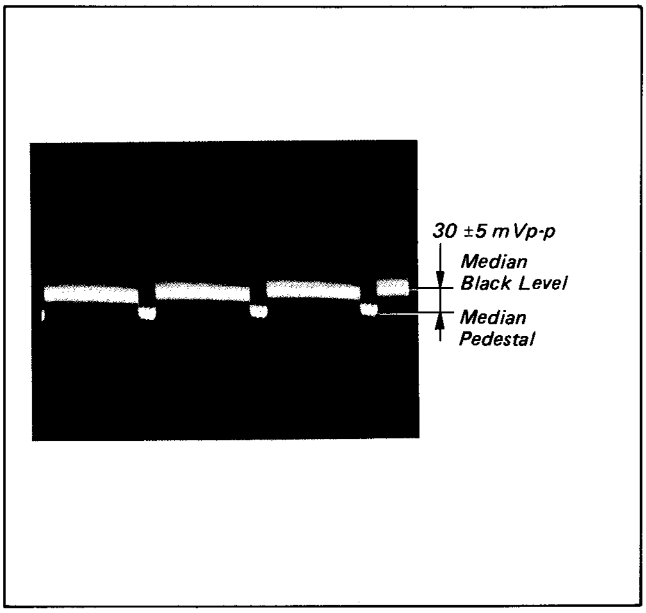


Fig. 1-19

1-14. RB PEDESTAL ADJUSTMENT

Equipment required: Oscilloscope
VC-5 Board CH1 TP810
CH2 TP811
Mode→ADD, Polarity→INV

Object: Totally Black (Lens covered with a black cap)

Adjusting Procedure: By turning RV644 and RV645 on SH-1 Board, adjust for a straightly linearized waveform (see Fig. 1-20).

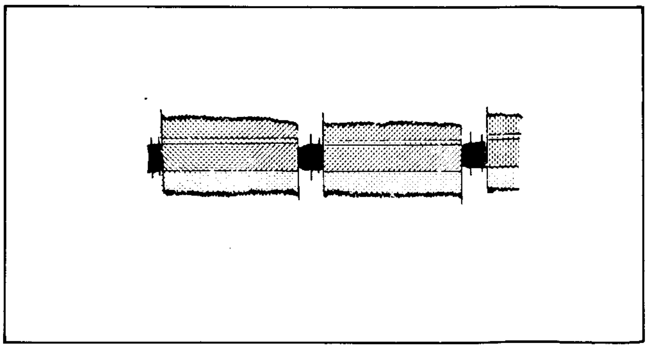


Fig. 1-20

1-15. MPX ADJUSTMENT

Equipment required: Oscilloscope
CH1 (X): VC-5 Board TP808 (B-Y)
CH2 (Y): VC-5 Board TP807
Mode: X-Y

Object: Totally Black (Lens covered with a black cap)

Adjusting Procedure: By turning RV825 (MPX) on MX-2 Board, adjust for a single black spot (see Fig. 1-21).

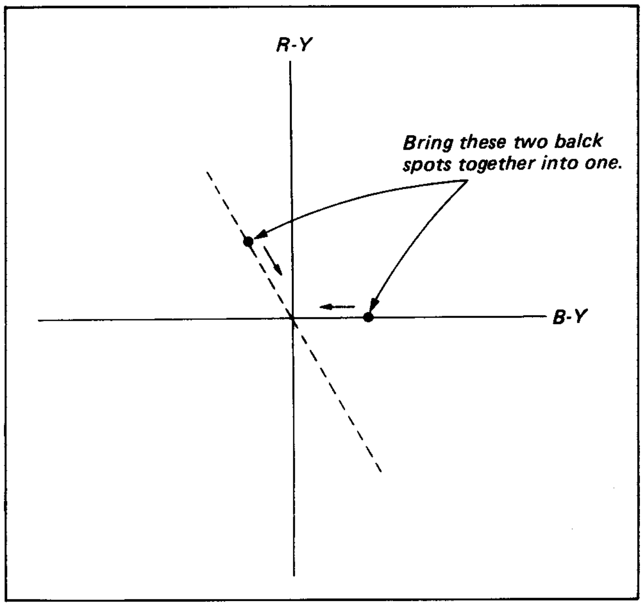


Fig. 1-21

1-16. CARRIER BALANCE ADJUSTMENT

Equipment required: Oscilloscope
VIDEO OUT of Track Shifting and Monitoring Jig

Object: Color Bar Chart (in Standard Pattern Frame)

Adjusting Procedure: By turning RV886 (CB 0°) and RV887 (CB 90°) on ED-11 Board, minimize the black area amplitude (see Fig. 1-22).

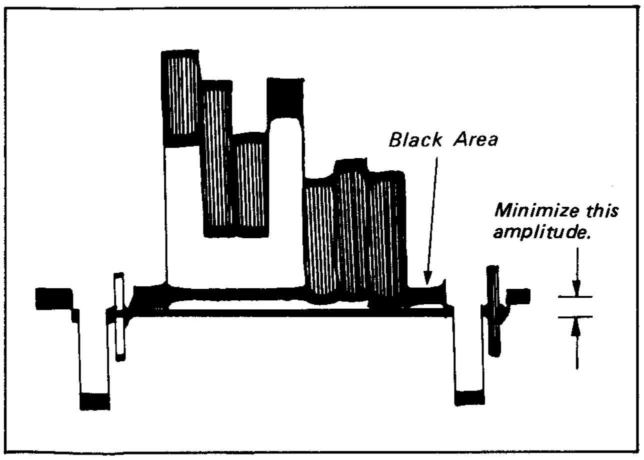


Fig. 1-22

1-17. G_1/G_2 GAIN ADJUSTMENT

Equipment required: Oscilloscope
VC-5 Board
(a) CH1 TP801 (G_0)
CH2 TP802 (G_1)
(b) CH1 TP801 (G_0)
CH3 TP803 (G_2)
Mode→ADD. Polarity→INV

Object: White Pattern (see Fig. 1-23)

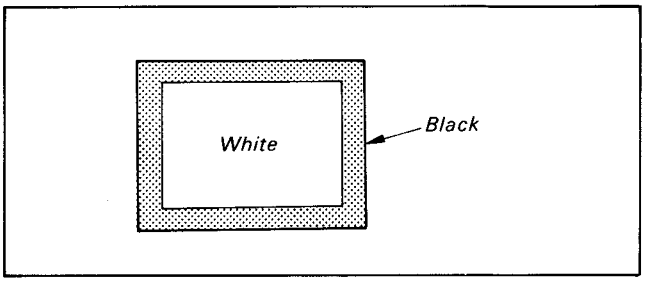


Fig. 1-23

Adjusting Procedure:

1) Set the oscilloscope probe at (a), and by turning RV821 on MX-2 Board, adjust for a straightly linear waveform (see Fig. 1-24).
2) Set the oscilloscope probe at (b), and by turning RV823 on MX-2 Board, adjust for a straightly linear waveform (see Fig. 1-24).

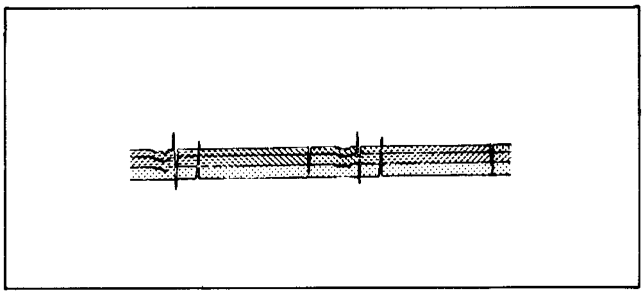


Fig. 1-24

1-18. RB$_1$/RB$_2$ GAIN ADJUSTMENT

Equipment required: Oscilloscope

VC-5 Board

(a) CH1 TP804 (RB$_0$)
CH2 TP805 (RB$_1$)

(b) CH1 TP804 (RB$_0$)
CH2 TP806 (RB$_2$)

Mode→ADD, Polarity→INV

Object: White Pattern (see Fig. 1-23)

Adjust Procedure:

1) Set the oscilloscope probe at (a), and by turning R822 on MX-2 Board, adjust for straightly linear waveform (see Fig. 1-25).
2) Next, set the oscilloscope probe at (b), and by turning RV824 on MX-2 Board, adjust for a straightly linear waveform (see Fig. 1-25).

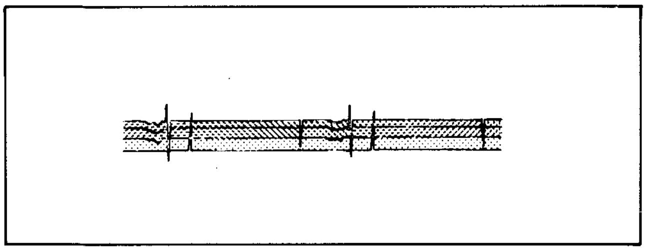


Fig. 1-25

1-19. SET-UP ADJUSTMENT

Equipment required: Oscilloscope
VC-6 Board TP952

Object: Totally Black (Lens covered with a black cap)

Adjusting Procedure: By turning RV883 on ED-11 Board, adjust the signal level at 65±5 mVp-p (see Fig. 1-26).

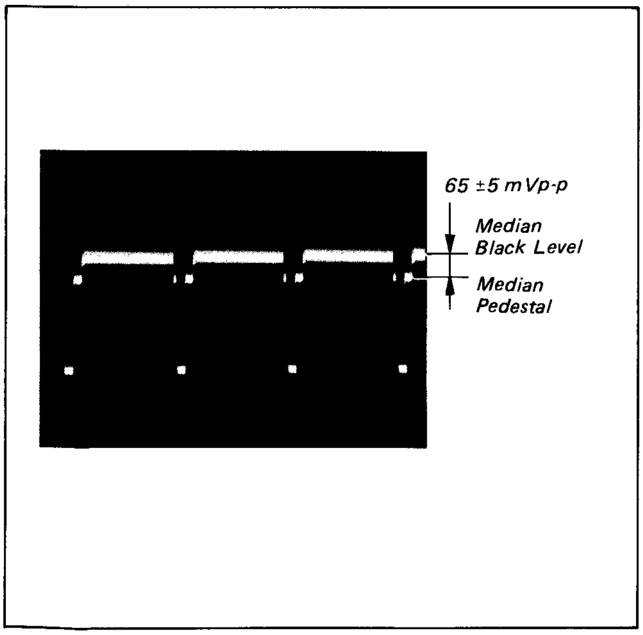

65 ±5 mVp-p
Median Black Level
Median Pedestal

Fig. 1-26

1-20. Y LEVEL ADJUSTMENT

Equipment required: Oscilloscope
VC-6 Board TP952

Object: Color Bar Chart (in Standard Pattern Frame)

Adjusting Procedure: By turning RV881 on ED-11 Board, adjust the signal level at 720^{+10}_{-20} mVp-p (see Fig. 1-27).

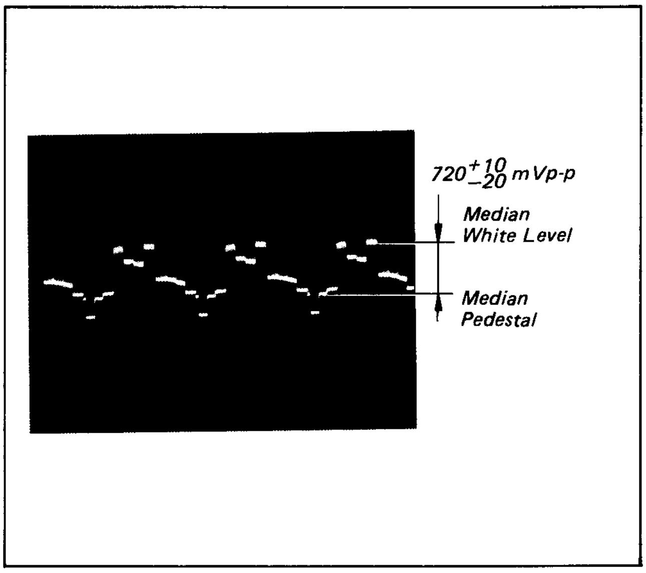

720+10−20 mVp-p
Median White Level
Median Pedestal

Fig. 1-27

1-21. APERTURE ADJUSTMENT

Equipment required: Oscilloscope
ME-1 Board TP711

Object: Color Bar Chart (in Standard Pattern Frame)

Adjusting Procedure:

1) Preset RV888 on ED-11 Board at its mechanical center, and RV889 at its extreme counterclockwise position (see Fig. 1-28).

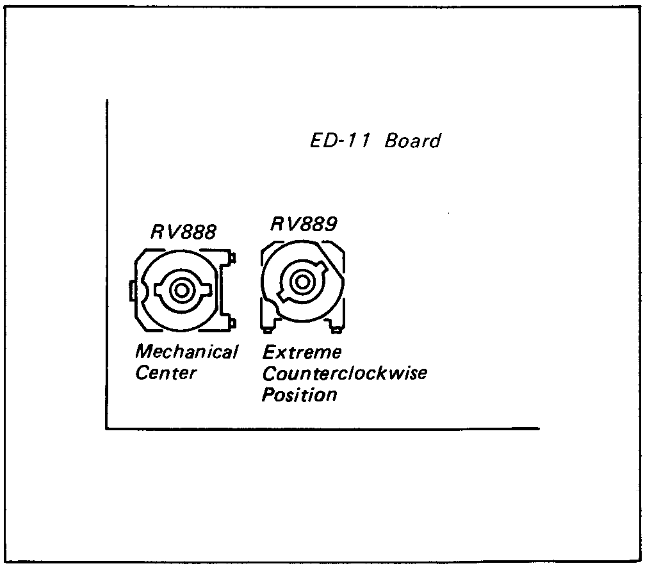

ED-11 Board
RV888
RV889
Mechanical Center
Extreme Counterclockwise Position

Fig. 1-28

2) After just focusing the image, slightly swing Camera around horizontally, and fix it at a position that has maximized the aperture.
3) By turning RV888 on ED-11 Board, adjust the aperture level between white and magenta at 180±10 mVp-p (see Fig. 1-29).
4) By turning RV889 on ED-11 Board, adjust teh aperture level between white and magenta at 70±10 mVp-p (see Fig. 1-29).

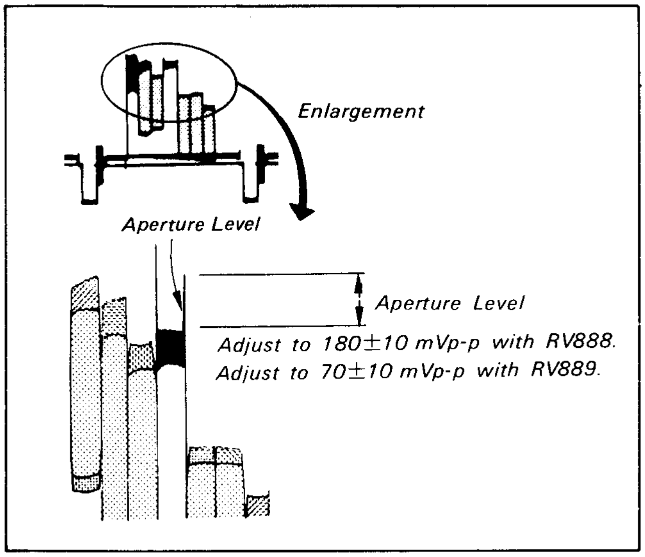

Enlargement
Aperture Level
Aperture Level
Adjust to 180±10 mVp-p with RV888.
Adjust to 70±10 mVp-p with RV889.

Fig. 1-29

1-22. WHITE CLIP ADJUSTMENT (2)

Equipment required: Oscilloscope
VC-6 Board TP952

Object: High Luminance Pattern

Adjusting Procedure: By turning RV890 on ED-11 Board, adjust the signal level at 840±10 mVp-p (see Fig. 1-30).

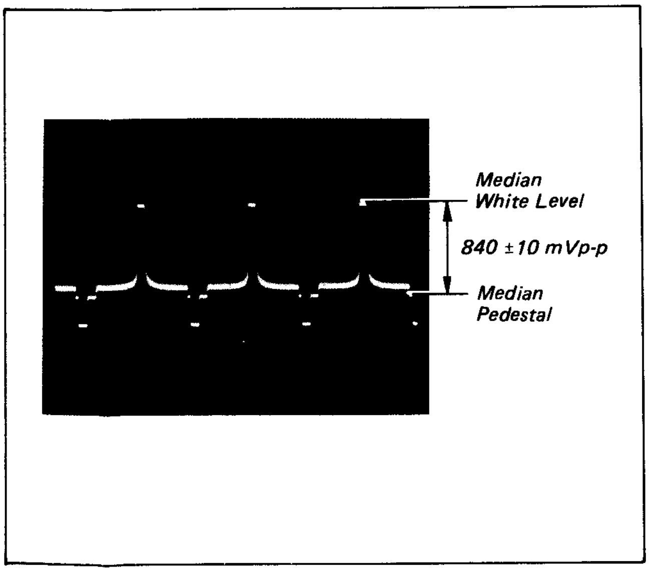


Fig. 1-30

1-23. MAX. GAIN ADJUSTMENT

Equipment required: Oscilloscope
VC-6 Board TP952

Object: Color Bar Chart (in Standard Pattern Frame)

Adjusting Procedure:

1) Apply an ND filter 1.8 to the Lens front.
2) By turning RV648 on SH-1 Board, adjust the waveform level at 390±10 mVp-p (see Fig. 1-31).

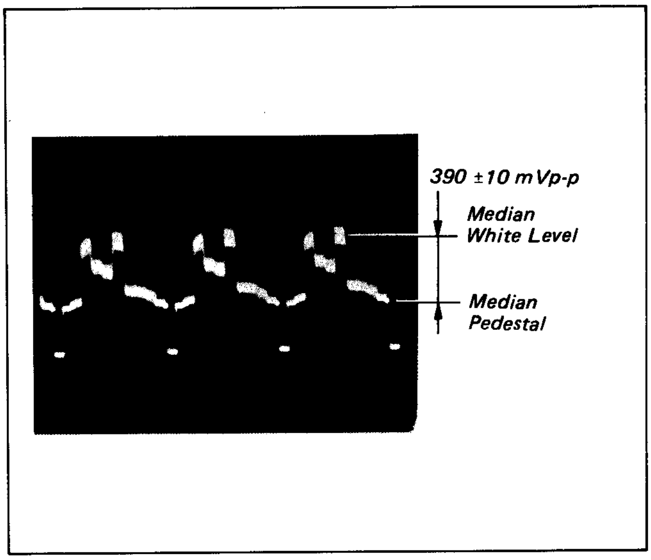


Fig. 1-31

1-24. WHITE BALANCE ADJUSTMENT

Equipment required: Oscilloscope
VC-6 Board TP951

Object:

Adjusting Procedure: By turning RV647 and RV646 on SH-1 Board, minimize the white level (see Fig. 1-32).

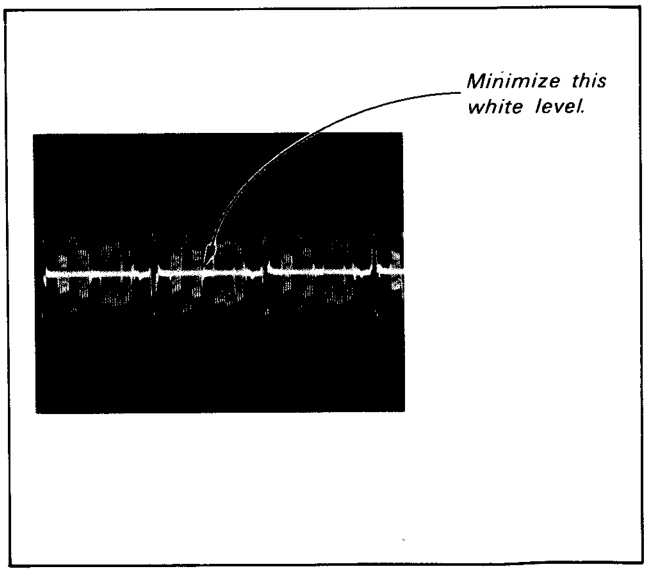


Fig. 1-32

1-25. BURST LEVEL ADJUSTMENT

Equipment required: Oscilloscope
VC-6 Board TP951

Object: Totally Balck (Lens covered with a black cap)

Adjusting Procedure: By turning RV891 on ED-11 Board, adjust the burst level at 520±10 mVp-p (see Fig. 1-33).

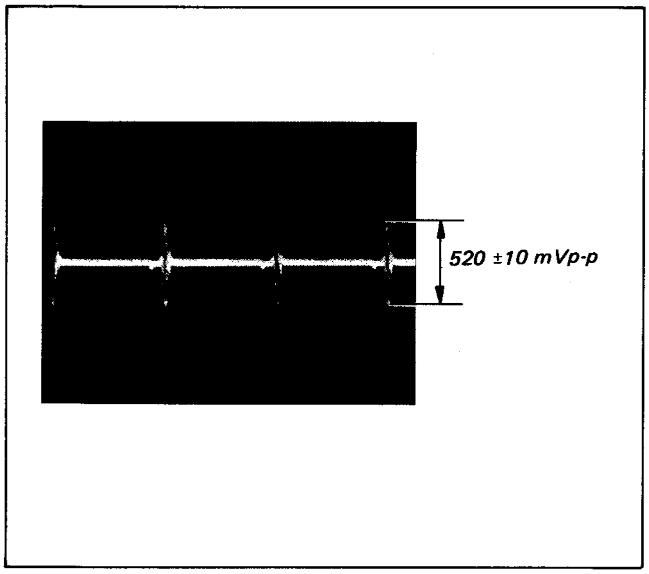


Fig. 1-33

1-26. COLOR REPRODUCIBILITY ADJUSTMENT

Equipment required: Digital Voltmeter
Oscilloscope

Object: Color Bar Chart (in Standard Pattern Frame)

Adjusting Procedure:

1) By turning RV884 on ED-11 Board, adjust the center terminal level at 2.5V DC (see Fig. 1-34).

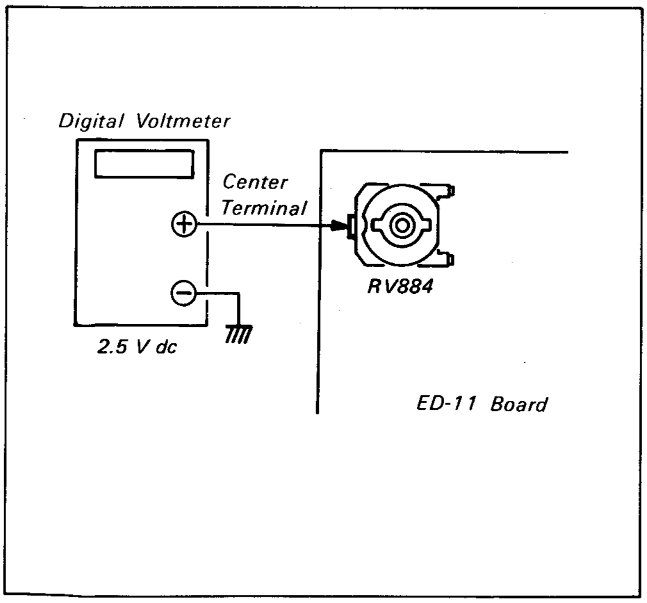

Digital Voltmeter
Center Terminal
RV884
2.5 V dc
ED-11 Board

Fig. 1-34

2) Connect an oscilloscope to TP951 on VC-6 Board, and by turning RV882 on ED-11 Board, adjust the red chrominance level at 400±20 mVp-p (see Fig. 1-35).

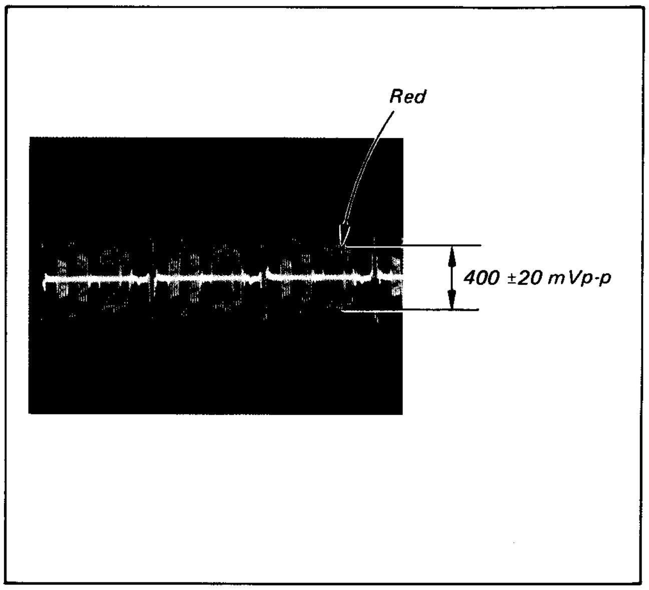

Red
400 ±20 mVp-p

Fig. 1-35

3) Connect the oscilloscope CH-1 and CH-2 to TP808 and TP807, respectively, on VC-5 Board, and engage an X-Y mode of both CH-1 and CH-2 at 50 mV/div.
4) By turning RV802 on VC-5 Board and RV827 on MX-2 Board, bring the YL luminescent spot to the center of its color reproduction frame (see Fig. 1-36).
5) Check to assure individual color liminescent spots to belong within their respective color reproduction frames.

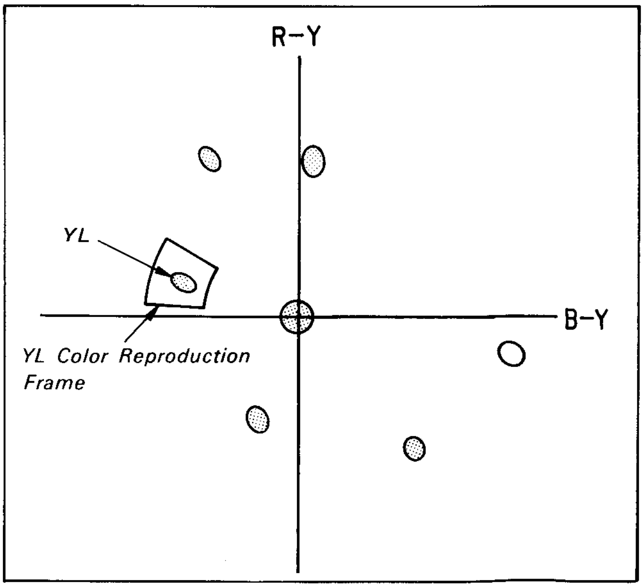

R-Y
YL
B-Y
YL Color Reproduction Frame

Fig. 1-36

1-27. LLA ADJUSTMENT

Object: Color Bar Chart (in Standard Pattern Frame)

Adjusting Procedure:

1) Cover Lens with an ND filter 1.4.
2) Turn RV723 on IA-1 Board until the LED begins to glow, and leave it there.
3) Replace the ND filter with one at 0.9, and check to assure the LED not to glow this time.

2. MECHANICAL ADJUSTMENT (VIDEO SECTION)

2-1. PREPARATION FOR CHECK, ADJUSTMENT AND REPLACEMENT OF THE MECHANICAL SECTIONS

With regard to removal of the cabinet, grip, board, etc., see "2. Disassembly" on SERVICE MANUAL of the above item.

2-1-1. Cassette Arm Assembly

1. Removal

1) Remove screws ❶, ❷, ❸ and ❹.
2) Remove cassette arm assembly ❺ (See Fig. 2-1)

2. Installation

1) Install cassette arm assembly ❺ to the main body so that the 2 positions of pins ❻ enter the predetermined positions.
2) Install screws ❶ and ❷.
3) Install screw ❸ loosely and tighten in the order of screw ❹ and screw ❸.

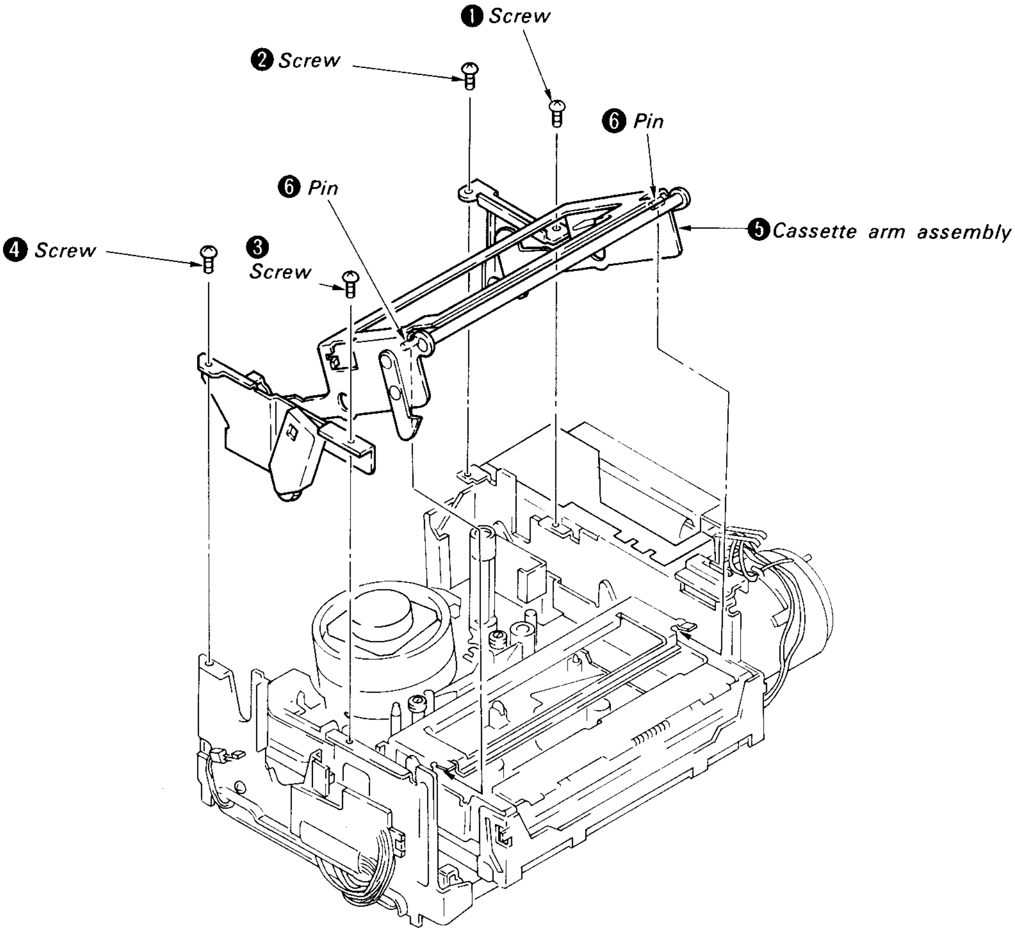

❶ Screw
❷ Screw
❻ Pin
❻ Pin
❺ Cassette arm assembly
❹ Screw
❸ Screw

Fig. 2-1

2-1-2. LS cassette Compartment Assembly

1. Removal

1) Remove screws ❶, ❷, ❸ and ❹.
2) Push 2 positions of the slot ❽ of LS chassis ❻ in the direction of arrow Ⓐ, and remove 2 positions of pin ❺.
3) Remove LS cassette compartment assembly ❼. (See Fig. 2-2)

2. Installation

1) Install LS cassette compartment assembly ❼ to the main body.
2) Push the 2 positions of slot ❽ of LS chassis in the direction of arrow Ⓐ, and insert pin ❺ at 2 positions.
3) Install screws ❸ and ❹ loosely and tighten in the order of screws ❶, ❷, ❸ and ❹.

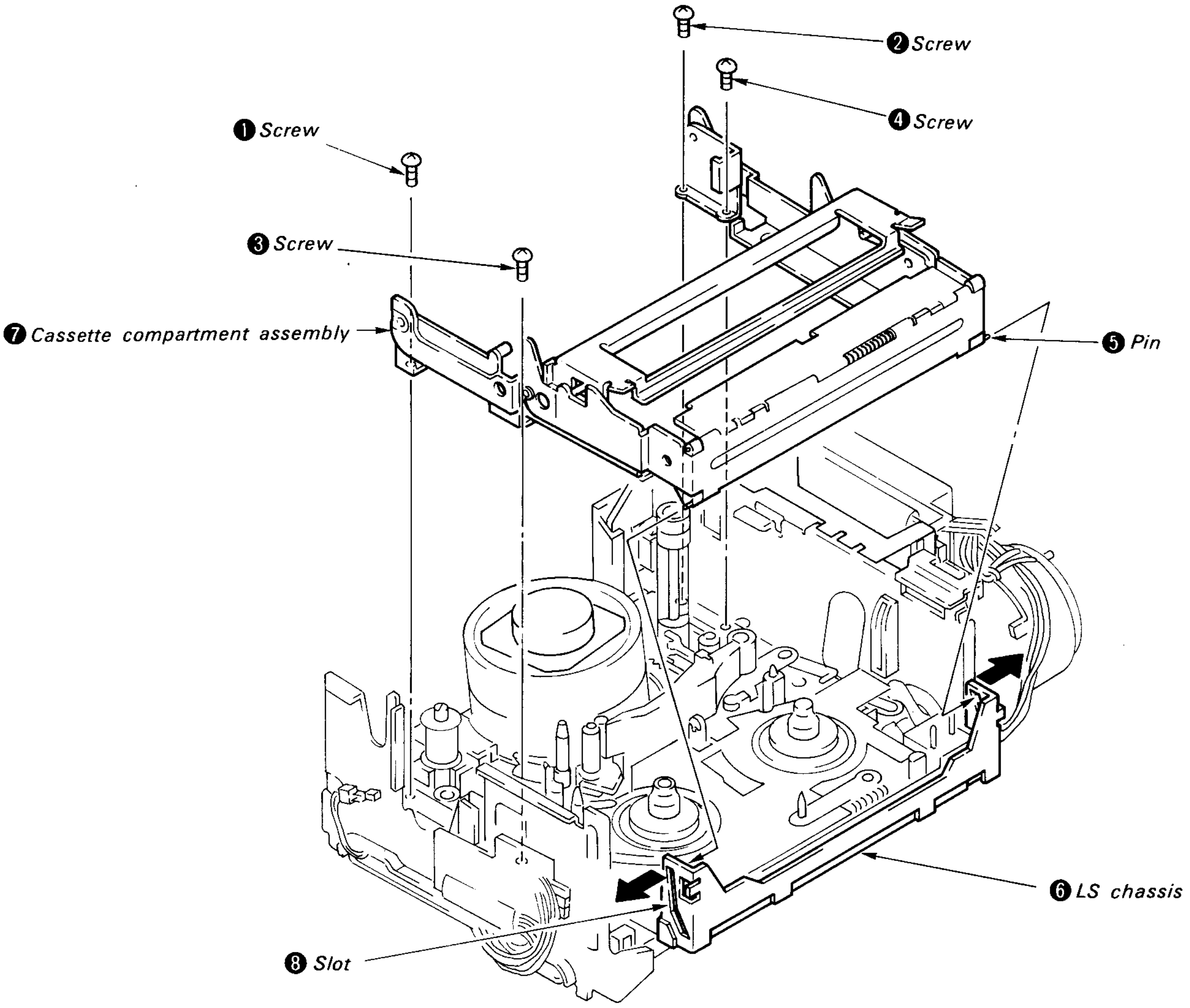

❷Screw
❹Screw
❶Screw
❸Screw
❼Cassette compartment assembly
❺Pin
❻LS chassis
❽Slot

Fig. 2-2

2-1-3. Extracting Method with the Cassette Loading End State

1) By referring 2-3-22, set MD-10 board up to be able to open.
2) By referring 2-1-5, connect the mode selector.

   Note:

   The mode indicated by ☐ is set by pushing the buttons of the mode selector.
3) Set up GUIDE LOAD mode, and move each tape guide from the position shown in Fig. 2-4 to the position shown in Fig. 2-5.
4) Open MD-10 board ❶, and wind up tape into cassette by rotating the rotor ❷ in the direction of arrow. (See Fig. 2-3)

   Note:

   Though in GUIDE LOAD mode, cannot wind up tape when each guide is not positioned as shown in Fig. 2-5, close to the cassette.
5) Be sure to wind up tape completely, and set up EJECT mode, then take out the cassette.

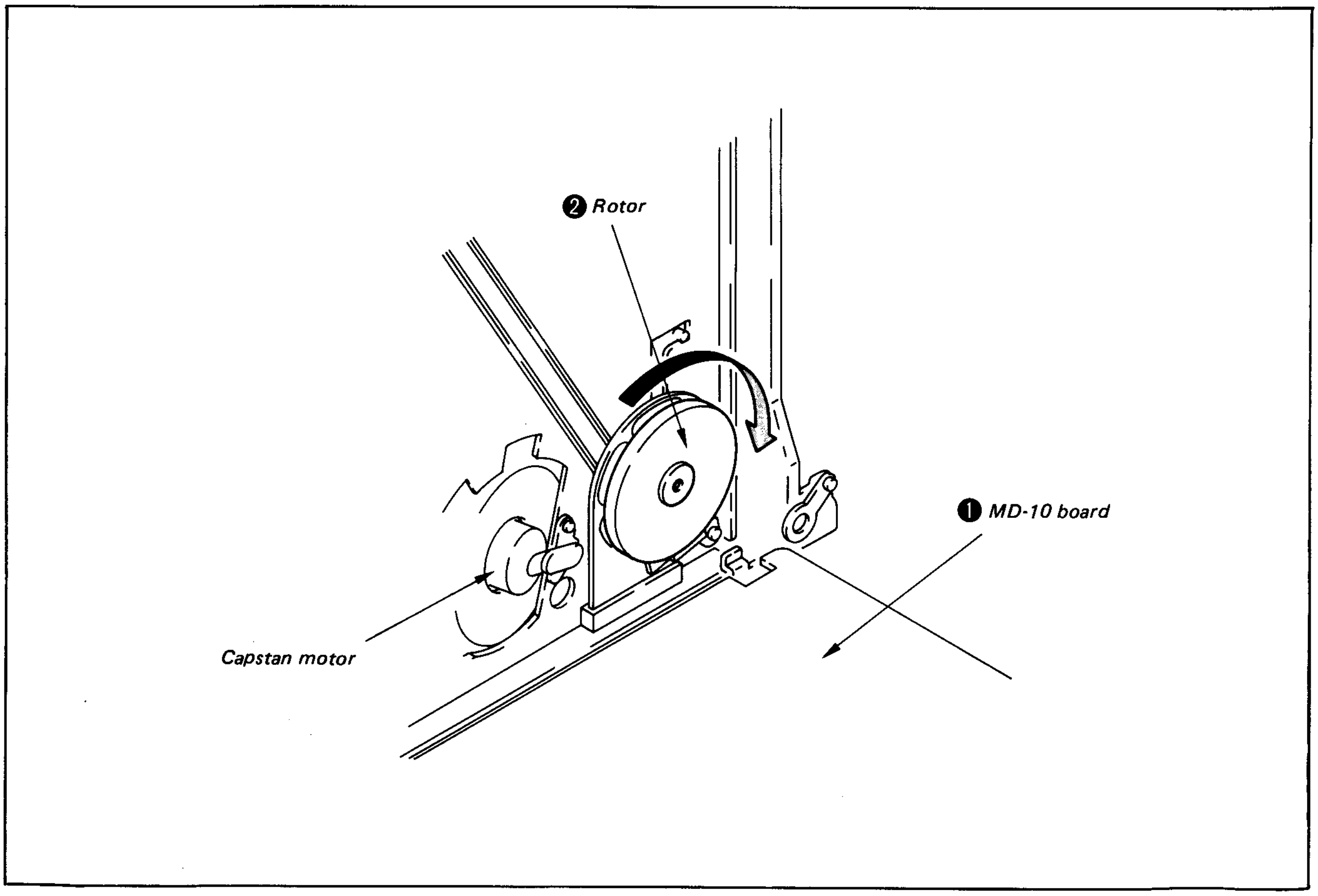


Fig. 2-3

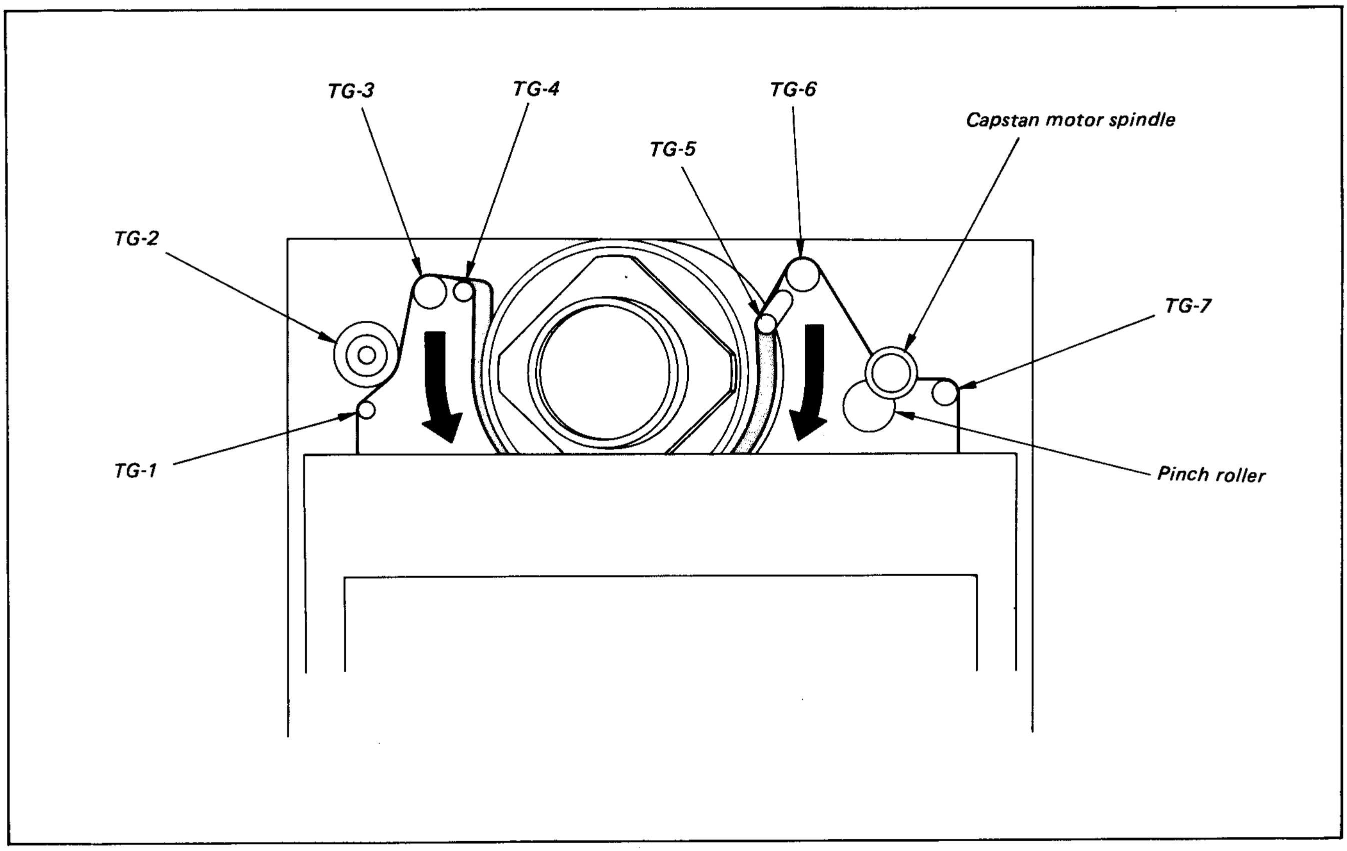
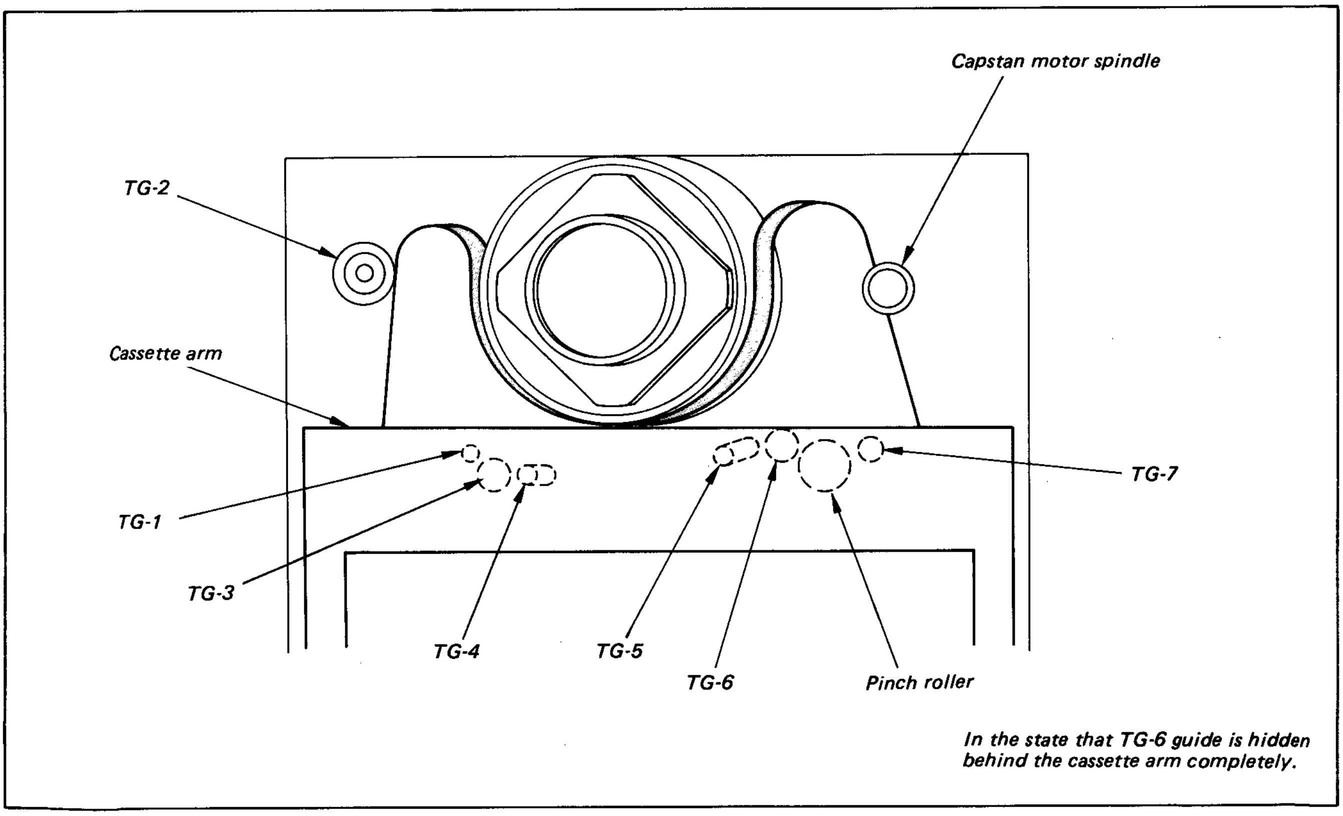

TG-3
TG-4
TG-6
TG-5
Capstan motor spindle
TG-2
TG-7
TG-1
Pinch roller

Fig. 2-4


Capstan motor spindle
TG-2
Cassette arm
TG-7
TG-1
TG-3
TG-4
TG-5
TG-6
Pinch roller

In the state that TG-6 guide is hidden behind the cassette arm completely.

Fig. 2-5

2-1-4. Cassette and Cassette Arm Assembly and Method to Operate the LS Cassette Compartment Assembly in the Removed State

1. How to load

1) Apply +6V to terminal plates ❶ and ❷ and 0V to terminal plate ❸.
2) Stick an opaque tape ❻ onto the tape end sensor of the ES-11 board ❺ and blindfold.
3) Secure with adhesive tape ❽ with the pin of push SW ❼ being in the pushed state.
4) Press in the return prevention arm ❾ in the direction of arrow Ⓐ. (Set becomes into loading state.) (See Fig. 2-6)

2. Recording state

1) Carry out ❶ above, turn ON the door switch ❿, and ground terminal plate ❹.

3. How to eject

1) Turn ON EJECT SW ⓫.

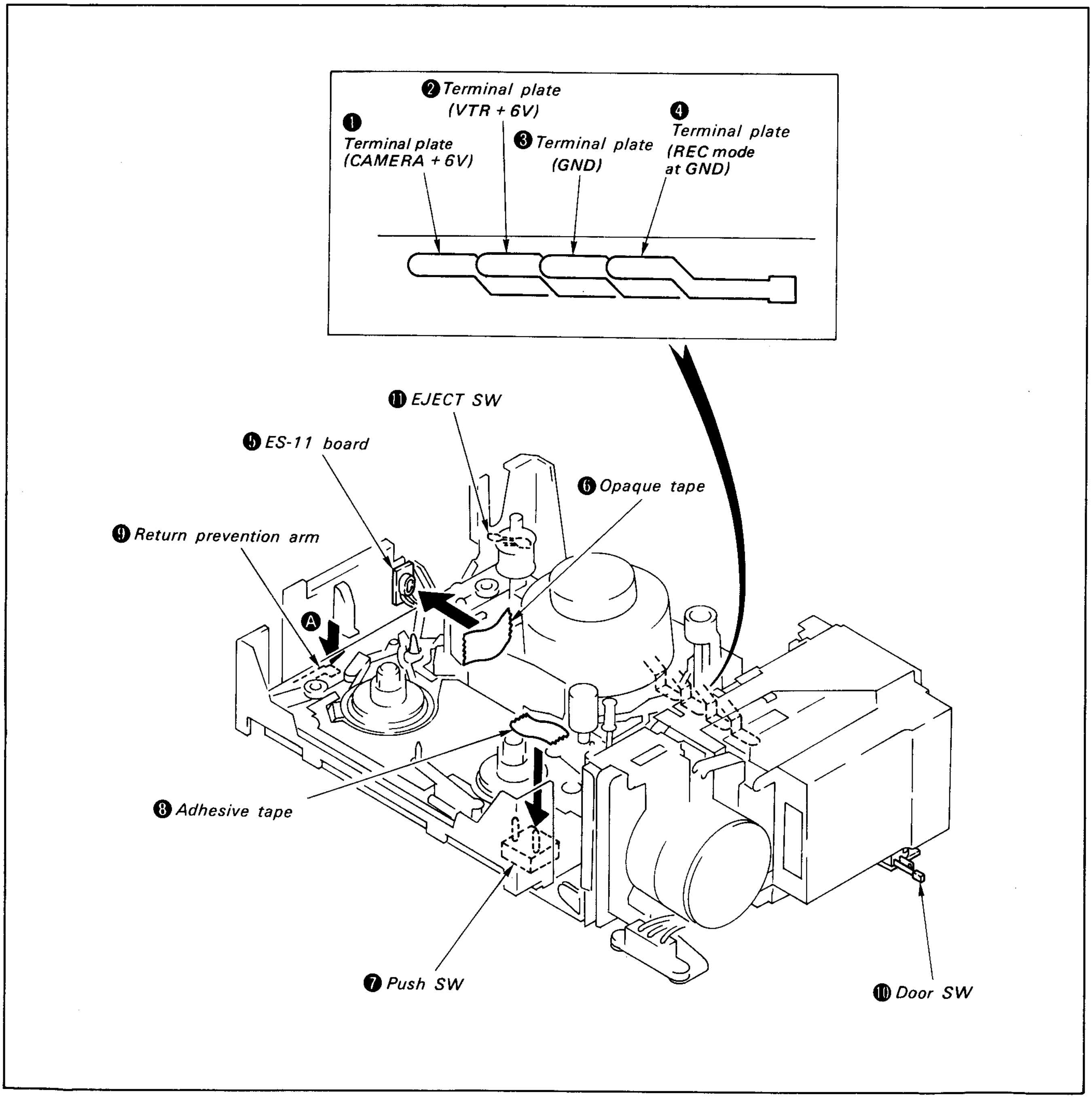

❷ Terminal plate (VTR + 6V)
❶ Terminal plate (CAMERA + 6V)
❸ Terminal plate (GND)
❹ Terminal plate (REC mode at GND)
⓫ EJECT SW
❺ ES-11 board
❻ Opaque tape
❾ Return prevention arm
Ⓐ
❽ Adhesive tape
❼ Push SW
❿ Door SW

Fig. 2-6

2-1-5. Handling of Mode Selector

- Install mode selector II panel (See Fig. 2-7)

1. **Name of each section (See Fig. 2-8)**

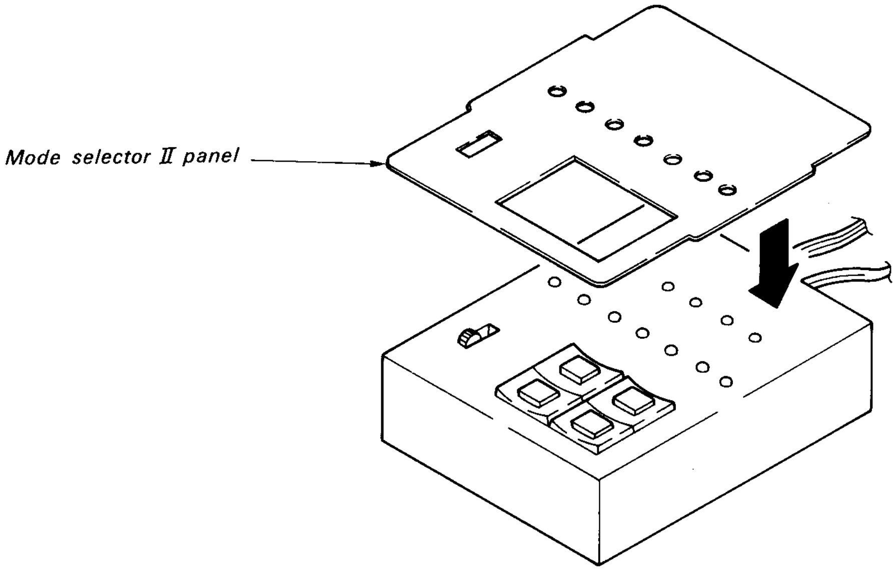

Mode selector II panel

Fig. 2-7

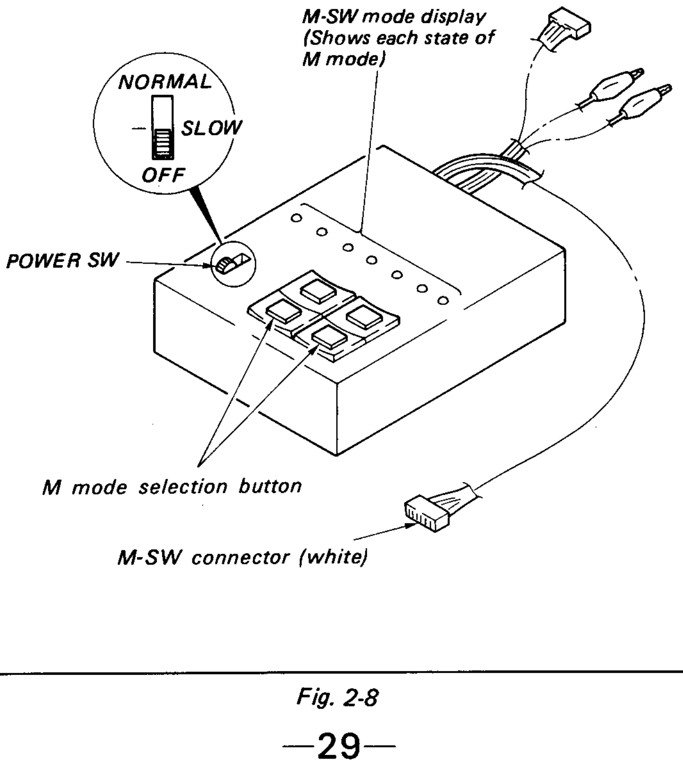

M-SW mode display
(Shows each state of
M mode)
NORMAL
SLOW
OFF
POWER SW
M mode selection button
M-SW connector (white)

Fig. 2-8

2. Connection

1) Remove connector of FP-10 flexible board with a flatblade screwdriver, etc.
2) Insert mode selector II conversion connector.
3) Insert M-SW connector into mode selector II conversion connector. (See Fig. 2-9)

3. Handling

1) Use only M mode selection button.
2) When selecting, if not in individual modes, "BLANK" is lit.
3) When right side of M mode selection button is pressed continuously, the lamps are lit in the order of EJECT→USE→GUIDE LOAD→REC→READY.
4) When rendering into READY→EJECT, press the selection button on the left side to obtain the objective mode.

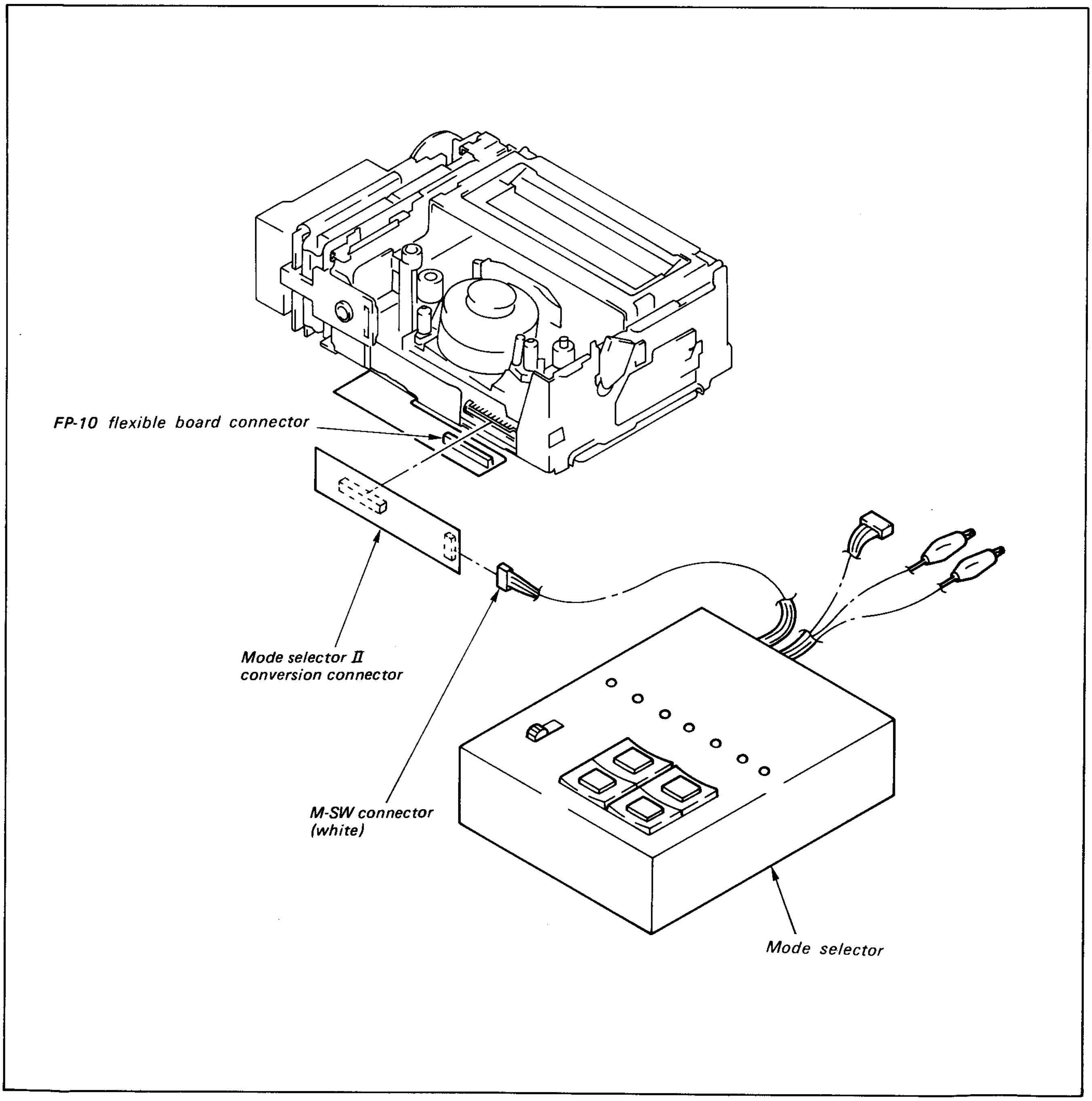
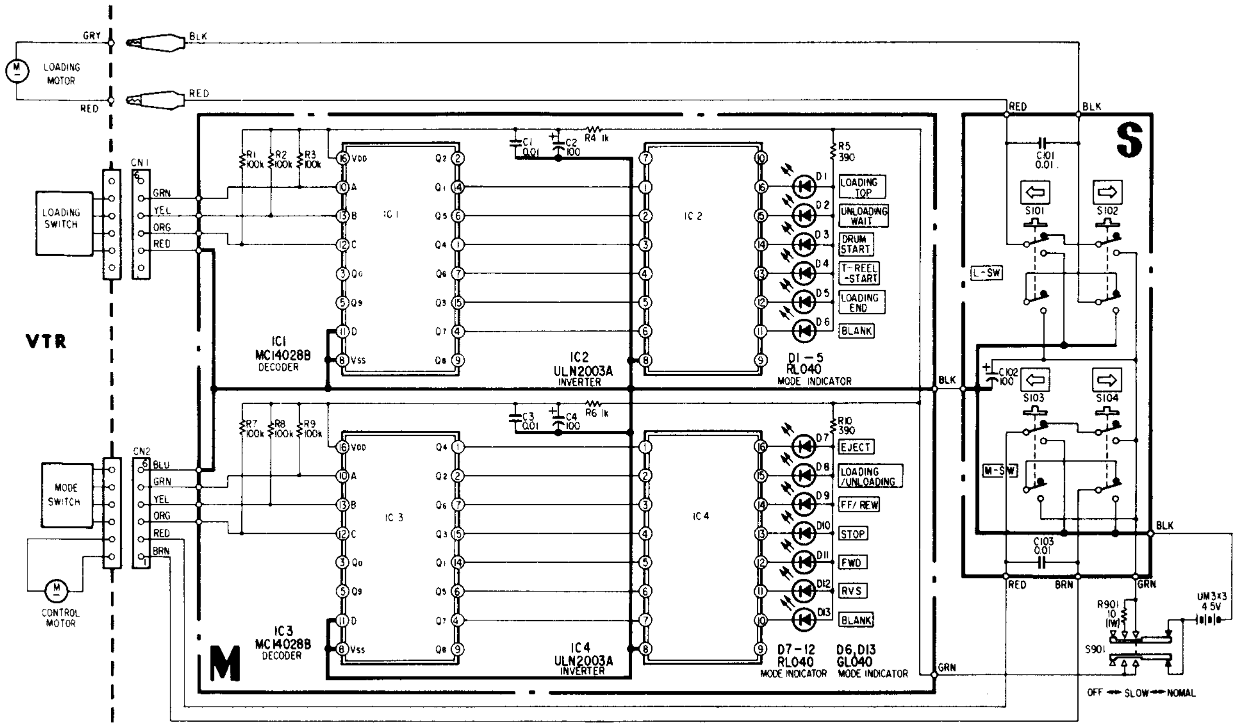

FP-10 flexible board connector
Mode selector II conversion connector
M-SW connector (white)
Mode selector

Fig. 2-9

4. Mode selector schematic diagram


GRY
BLK
LOADING MOTOR
RED
CN1
LOADING SWITCH
GRN
YEL
ORG
RED
VTR
CN2
MODE SWITCH
BLU
BRN
CONTROL MOTOR
R1 100k
R2 100k
R3 100k
C1 0.01
C2 100
R4 1k
IC1 MC14028B DECODER
IC2 ULN2003A INVERTER
R5 390
D1
D2
D3
D4
D5
D6
LOADING TOP
UNLOADING WAIT
DRUM START
T-REEL -START
LOADING END
BLANK
D1-5 RL040 MODE INDICATOR
R7 100k
R8 100k
R9 100k
C3 0.01
C4 100
R6 1k
IC3 MC14028B DECODER
IC4 ULN2003A INVERTER
R10 390
D7
D8
D9
D10
D11
D12
D13
EJECT
LOADING /UNLOADING
FF/REW
STOP
FWD
RVS
BLANK
D7-12 RL040 MODE INDICATOR
D6,D13 GL040 MODE INDICATOR
M
S
C101 0.01
S101
S102
L-SW
C102 100
S103
S104
M-SW
C103 0.01
RED
BRN
GRN
BLK
R901 10 (1W)
UM3×3 4.5V
S901
OFF ⟷ SLOW ⟷ NOMAL

M-SW (IC 3)

DECODER INPUT			MODE	LED NO.
C	B	A		
0	0	0		
0	0	1	FWD	D11
0	1	0	LOADING/UNLOADING	D8
0	1	1	STOP	D10
1	0	0	EJECT	D7
1	0	1	RVS	D12
1	1	0	FF/REW	D9
1	1	1	BLANK	D13

0 : INPUT LEVEL L
1 : INPUT LEVEL H

L-SW (IC 1)

DECODER INPUT			MODE	LED NO.
C	B	A		
0	0	0		
0	0	1	LOADING TOP	D1
0	1	0		
0	1	1	LOADING END	D5
1	0	0	DRUM START	D3
1	0	1	UNLOADING WAIT	D2
1	1	0	T-REEL-START	D4
1	1	1	BLANK	D6

SWITCH ⇦	SWITCH ⇨	DIRECTION OF MOTOR REVOLUTION
OFF	OFF	STOP
ON	OFF	⇦
OFF	ON	⇨

⇦ L-SW LOADING END ← LOADING TOP
M-SW RVS ← EJECT

⇨ L-SW LOADING TOP ← LOADING END
M-SW EJECT ← RVS

5. Mode selector parts list

CAPACITOR

Ref. No.	Part No.	Description
C1	1-108-579-00	MILER 0.01μF 50V
C2	1-123-333-00	ELECT 100μF 24V
C3	1-108-579-00	MILER 0.01μF 50V
C4	1-123-333-00	ELECT 100μF 24V
C101	1-108-579-00	MILER 0.01μF 50V
C103	1-108-579-00	MILER 0.01μF 50V

DIODE

Ref. No.	Part No.	Description
D1	8-179-812-31	DIODE RL040
D2	8-179-812-31	DIODE RL040
D3	8-179-812-31	DIODE RL040
D4	8-179-812-31	DIODE RL040
D5	8-179-812-31	DIODE RL040
D6	8-719-812-33	DIODE GL040
D7	8-179-812-31	DIODE RL040
D8	8-179-812-31	DIODE RL040
D9	8-179-812-31	DIODE RL040
D10	8-179-812-31	DIODE RL040
D11	8-179-812-31	DIODE RL040
D12	8-179-812-31	DIODE RL040
D13	8-719-812-33	DIODE GL040

IC

Ref. No.	Part No.	Description
IC1	8-759-240-28	IC TC4028BP
IC2	8-759-120-03	IC μPA2003A
IC3	8-759-240-28	IC TC4028BP
IC4	8-759-120-03	IC μPA2003A

RESISTOR

Ref. No.	Part No.	Description
R1	1-247-179-00	CARBON 100K 1/4W
R2	1-247-179-00	CARBON 100K 1/4W
R3	1-247 179-00	CARBON 100K 1/4W
R4	1-247-131-00	CARBON 1K 1/4W
R5	1-247-121-00	CARBON 390 1/4W
R6	1-247-131-00	CARBON 1K 1/4W
R7	1-247-179-00	CARBON 100K 1/4W
R8	1-247-179-00	CARBON 100K 1/4W
R9	1-247-179-00	CARBON 100K 1/4W
R10	1-247-121-00	CARBON 390 1/4W
R901	1-214-594-00	METAL FILM 10 1W

2-2. PERIODIC CHECK AND MAINTENANCE

- In order to fully exhibit the functions and performance of the set, carry out the following maintenance and periodic checks for the equipment and tape. In addition, after repair, carry out the following itemized maintenance irrespective of the user's length of time of usage.

2-2-1. Cleaning of Rotary Drum Assembly

1) Press a chamois cloth (Ref.No.J-2) soaked in cleaning fluid (Ref.No.J-1) lightly against the rotary drum assembly, and slowly rotate the rotary upper drum assembly counterclockwise by hand to clean.

Note:
Do not use the power supply to rotate the motor, and do not rotate the drum clockwise by hand. Also, there is the danger of damaging the head tip if the chamois cloth is moved vertically relative to the head tip, so follow the instruction above for cleaning.

2-2-2. Cleaning of Tape Path

Place the cassette compartment assembly in the EJECT state, and clean the tape path (TG-1, 2, 3, 4, 5, 6 and 7, pinch roller, and capstan shaft) with a chamois cloth soaked in cleaning fluid. (See Fig.2-10)

2-2-3. Cleaning of Drive System

1) Clean the drive system (relay belt and surface of reel tables) with a chamois cloth soaked in cleaning fluid.

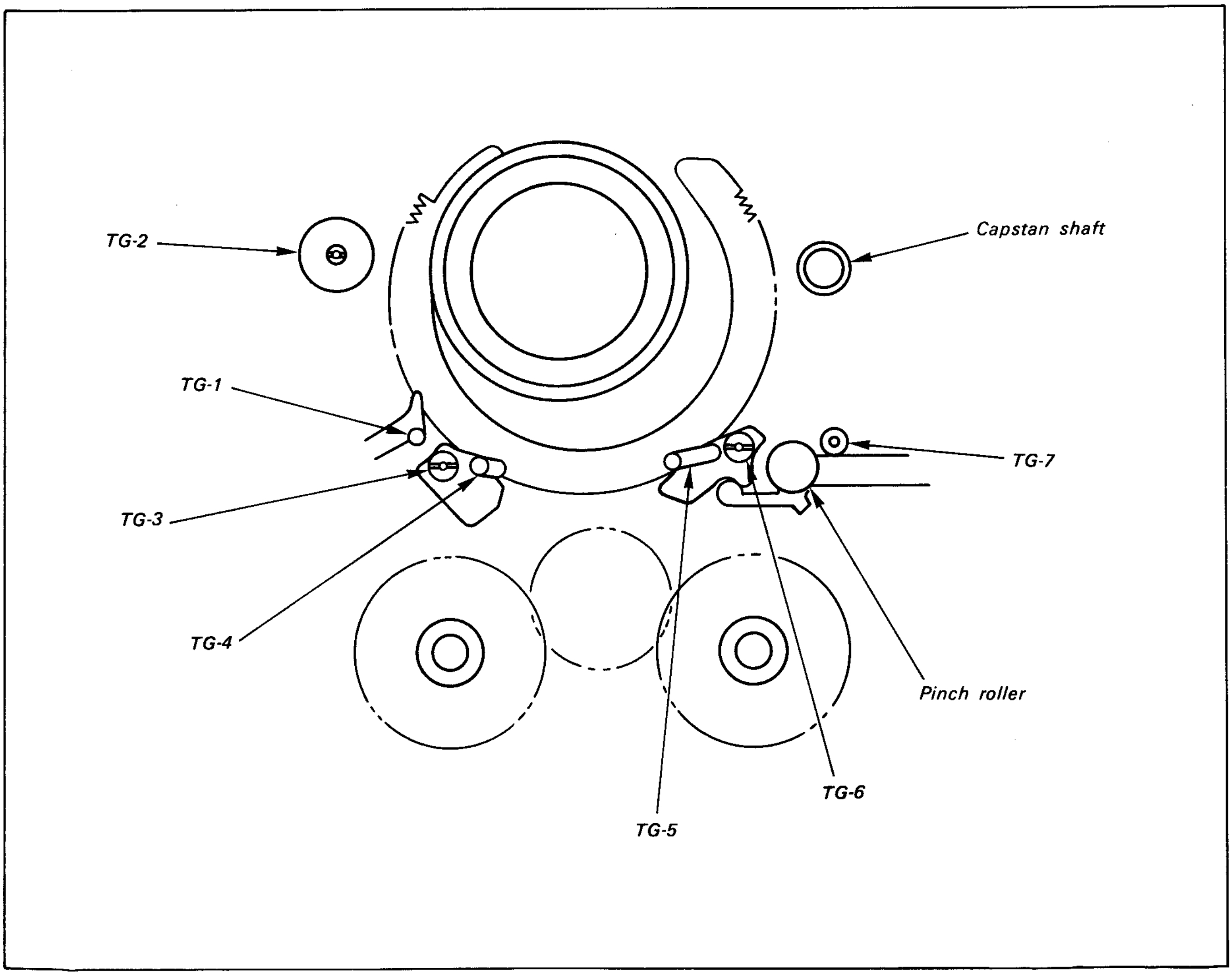


Fig. 2-10

2-2-4. Periodic Check

Location of Maintenance and check	Hours of Use (H)										Remarks
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
Cleaning of tape path surface	○	○	○	○	○	○	○	○	○	○	Be careful of oil
Cleaning and degaussing of rotary assembly	○	○	○	○	○	○	○	○	○	○	Be careful of oil
Relay belt	○	○	○	○	○	○	○	○	○	○	3-695-637-01
Capstan shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Be absolutely careful not to get oil on the tape path surface.
Control motor (LM motor)	—	☆	—	☆	—	☆	—	☆	—	☆	8-835-147-01
Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
Back tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
FWD. RVS torque measuement	—	☆	—	☆	—	☆	—	☆	—	☆	

○: Cleaning ◎: Oil ☆: Confirmation

Tape Trans-Portion System
Driving System
Performance Confirmation

Notes:

1) **When performing overhaul, refer to the items above when replacing parts.**
2) **SONY oil**
   - **Be sure to use SONY oil. (There is the danger of various troubles occuring if a different viscosity is used.)**
     SONY oil: Parts No. 7-667-088-61 (MITSUBISHI Diamond Oil 400)
   - **Be absolutely sure to use clean oil without any mixture of dust, etc. when lubricating the shaft bearing. (There is the danger of wear and burning if dirty oil is used with a mixture of dust, etc.)**
   - **One drop of oil means the amount which sticks to a 2 mm diameter rod, as shown in figure. (See Fig. 2-11)**

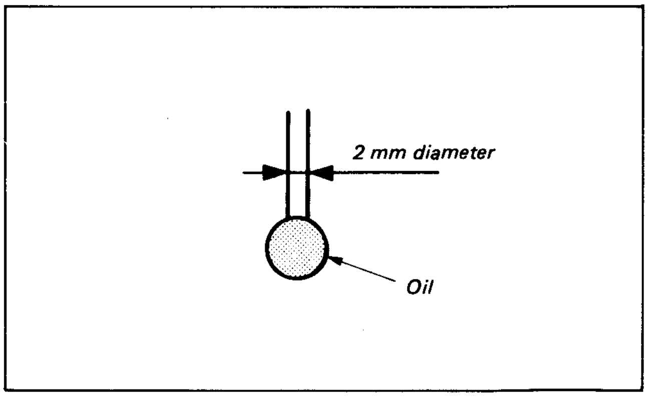


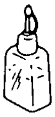
Fig. 2-11

2-2-5. Service Jig Table

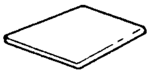
Ref No.	Name	Part No.	Jig	Usage and Others
J1	Cleaning fluid	Y-2031-001-0		
J2	Chamois cloth	2-034-697-00		
J3	Head degausser	Widely available		
J4	Small adjustment mirror	J-6080-028-A	SL5052	Tape path
	Spare mirror	J-6080-030-1		
J5	Alignment tape (WR5-1N)	8-967-995-01		Tape path
J6	Dial tension gauge	J-6080-827-A		Various torque measurement
J7	Tension measurement reel	J-6080-831-A		With ϕ30 tape
J8	Tension measurement reel	J-6080-832-A		With ϕ16 string
J9	FWD and RVS winding torque cassette	J-6080-624-A	GD-2086	
J10	Rotary drum jig	(Packed with the repair rotary upper drum)		
J11	Screwdriver for tape path	J-6080-811-A		For tape guide adjustment
J12	Mode selector II panel	J-6080-844-A		
J13	Mode selector	J-6080-825-A		For all models
J14	Mode selector II conversion connector	J-6080-845-A		
J15	Tape end detecting filter	J-6080-848-A		Tape end detecting adjustment

Other equipment
- Oscilloscope
- Analog tester (20 kΩ)

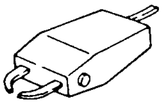
J-1



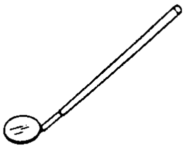
J-2



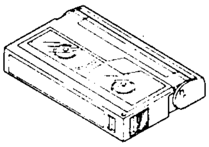
J-3



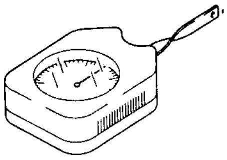
J-4



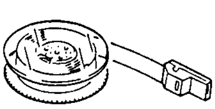
J-5



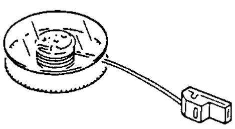
J-6



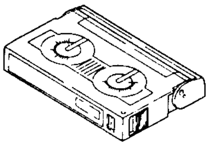
J-7



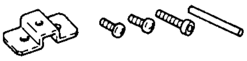
J-8



J-9

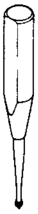


J-10

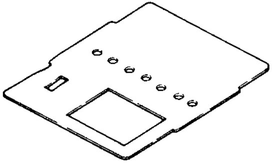


(Packed with the repair rotary upper drum.)

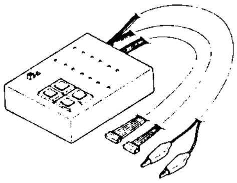
J-11



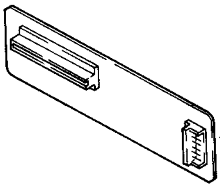
J-12



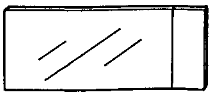
J-13



J-14



J-15



2-3. MECHANICAL CHECK, ADJUSTMENT AND REPLACEMENT

Note:

- **Use the mode selector (Ref. No. J-13) for this mechanical check, adjustment and replacement.**
- **The mode inside the ☐ is the mode set by pressing the mode selector button.**

2-3-1. Reel Lock Lever Assembly

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) Remove tension spring ❶ from notch ❷.
3) Remove reel lock lever assembly ❹ from claw ❸ and shaft ❺. (See Fig. 2-12)

2. Installation

1) Install reel lock lever assembly ❹ to shaft ❺ and insert to claw ❸.
2) Hook the tension coil ❶ spring to notch ❷.
3) By referring to 2-1-1 and 2-1-2, install the cassette arm assembly and LS cassette compartment.

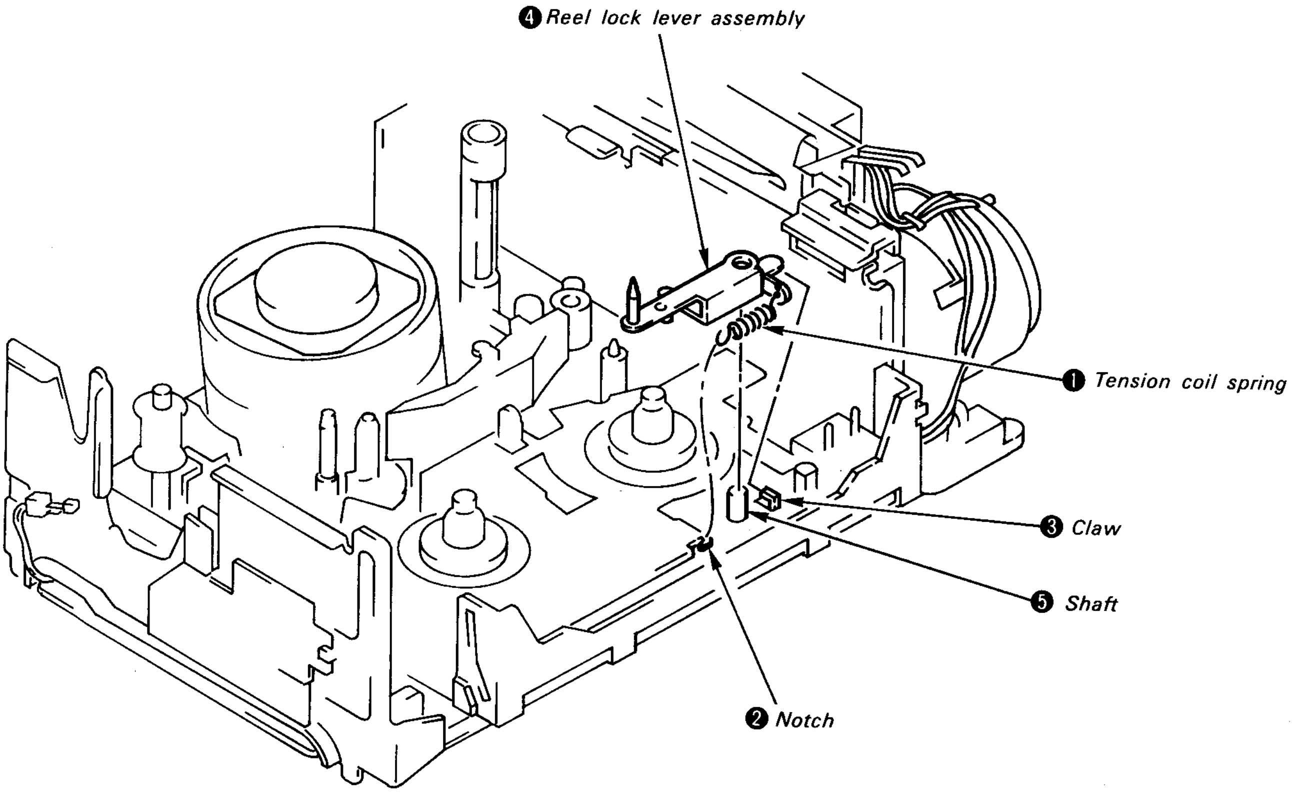


Fig. 2-12

2-3-2. Pendulum Stopper Plate

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove the cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-1, remove reel lock lever assembly.
3) Push LED assembly 1 in the direction of arrow Ⓐ, and remove claw ⑦.
4) Remove 2 screws ②.
5) Remove pendulum stopper plate ④ from the 2 positions of claws ③.

Note:

As claw ⑦ is easily broken, precaution should be taken in installation and removal. (See Fig. 2-13)

2. Installation

1) Set in GUIDE LOAD mode, and wind TG-1 band assembly ⑤ tightly to S reel.
2) See to it that the LED assembly ① is mounted on the pendulum stopper plate ④, and fasten to 2 positions of the claw and 2 positions of the dowel.
3) Install 2 screws ②.
4) Hook claw ⑥ of LED assembly ①, and insert by pushing in the direction of arrow Ⓑ.
5) Set to EJECT mode.
6) By referring to 2-3-1, install the reel lock lever assembly.
7) By referring to 2-1-1 and 2-1-2, install the cassette arm assembly and LS cassette compartment assembly.

Note:

Caution should be taken that the TG-1 band assembly ⑤ is not clasped in when installing the pendulum stopper plate.

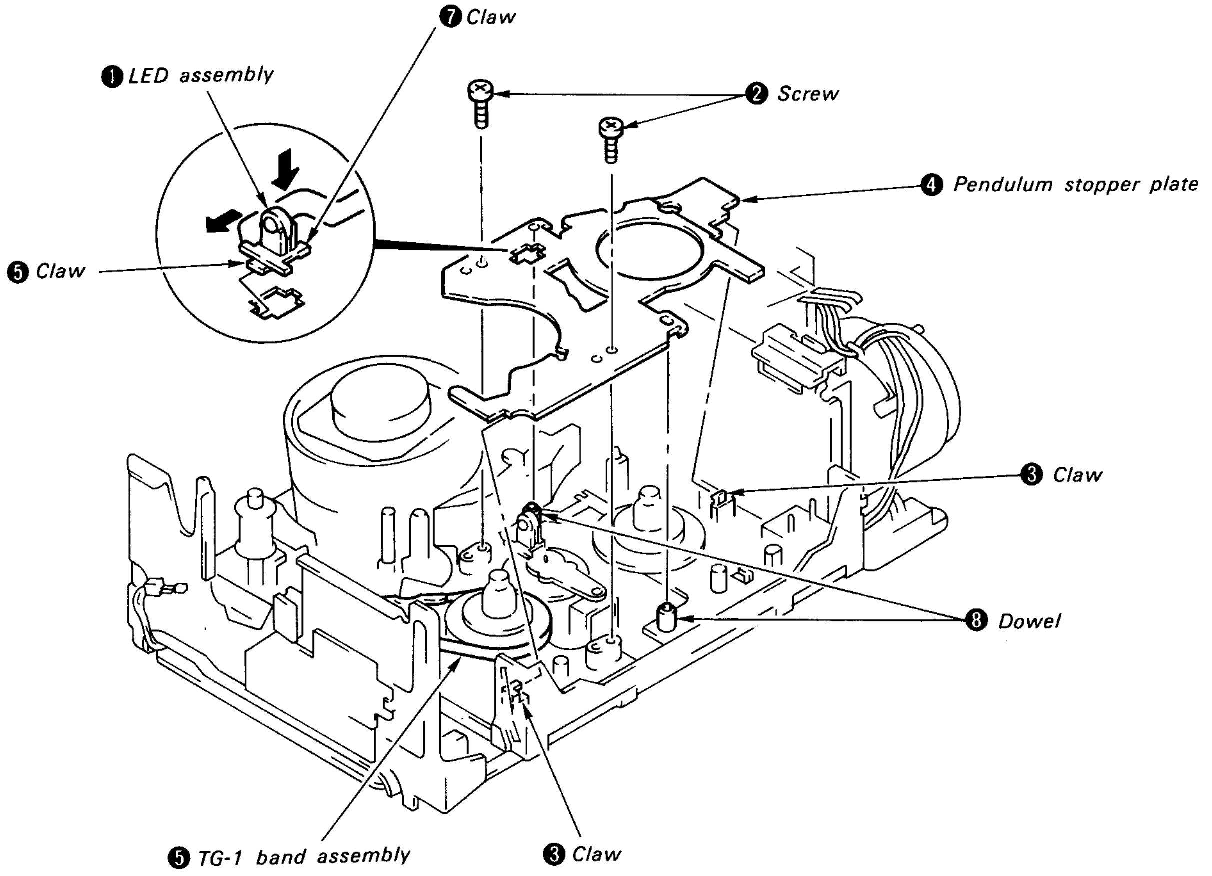


Fig. 2-13

2-3-3. S Reel Table Assembly

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-1, remove reel lock lever assembly.
3) By referring to 2-3-2, remove pendulum stopper plate.
4) Remove 1 screw ❶, and remove one side of TG-1 band assembly ❷.
5) Move the soft brake ❸ in the direction of arrow Ⓐ.
6) Remove S reel table assembly ❹. (See Fig. 2-14)

Note:

Perform removal of S reel table assembly by holding the * marked section of reel claw.

2. Installation

1) Apply over 1/3 drop and below 1/2 drop of oil to the arrow section of shaft ❺, as in Fig. B.
2) Move soft brake ❸ in the direction of arrowⒶ.
3) Install S reel table assembly ❹ to the shaft.
4) Install screw ❶ to TG-1 band assembly ❷ in the 2) state.
5) By referring to 2-3-2, install pendulum stopper plate.
6) By referring to 2-3-1, install reel lock lever assembly.
7) By referring to 2-1-1, install cassette arm assembly and LS cassette compartment assembly.

Note:

By referring to 2-3-27, perform check of reel table height.

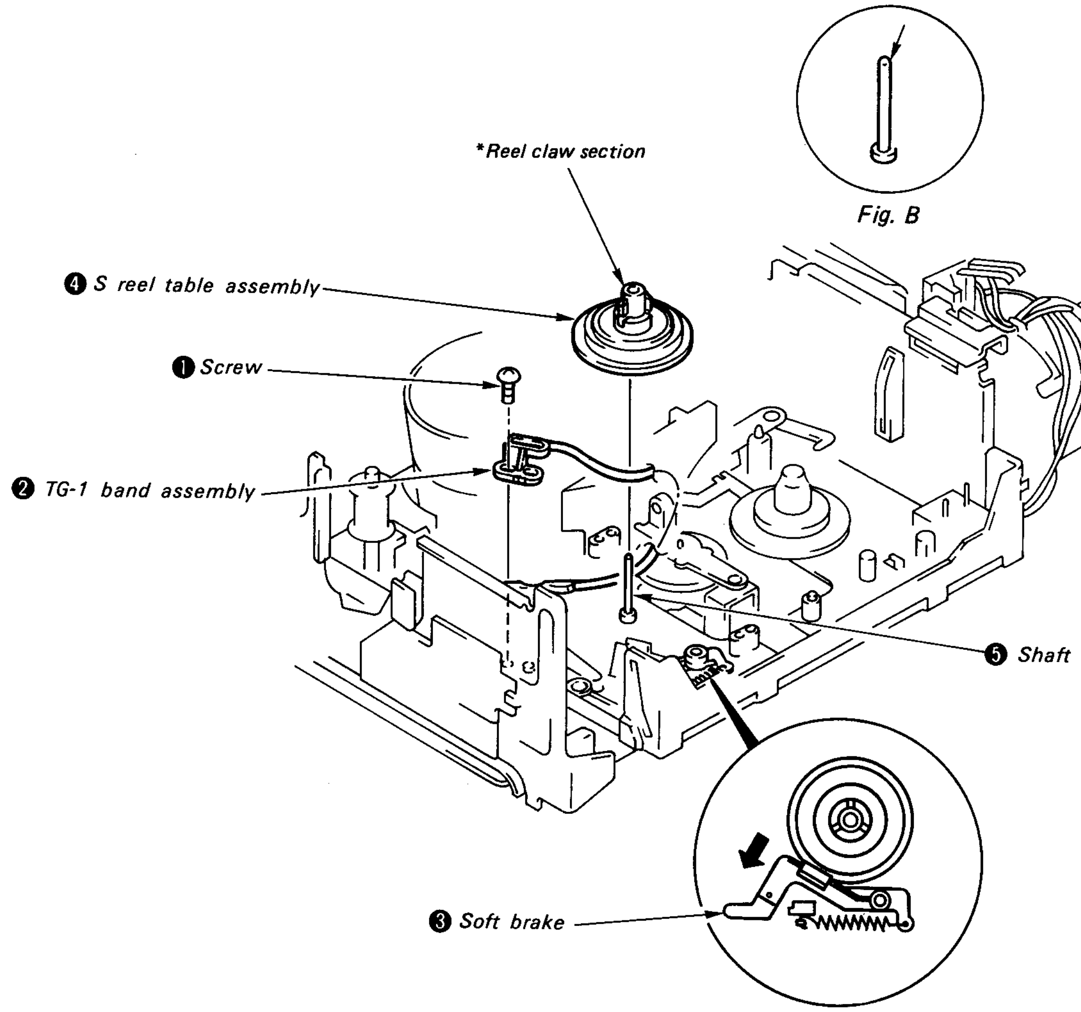


Fig. 2-14

2-3-4. T Reel Table Assembly

1. Removal

1) By referring to 2-1-1, remove the cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-1, remove reel lock lever assembly.
3) By referring to 2-3-2, remove pendulum stopper plate.
4) Remove T reel table assembly ❶. (See Fig. 2-15)

Note:
Perform removal of T reel table assembly ❶ by holding the reel claw section marked with *.

2. Installation

1) Apply over 1/3 drop and below 1/2 drop of oil to the arrow section of shaft ❷, as in Fig. A.
2) Install T reel table assembly ❶ to shaft ❷.
3) By referring to 2-3-2, install pendulum stopper plate.
4) By referring to 2-3-1, install reel lock lever assembly.
5) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

Note:
By referring to 2-3-27, perform check of reel table height.

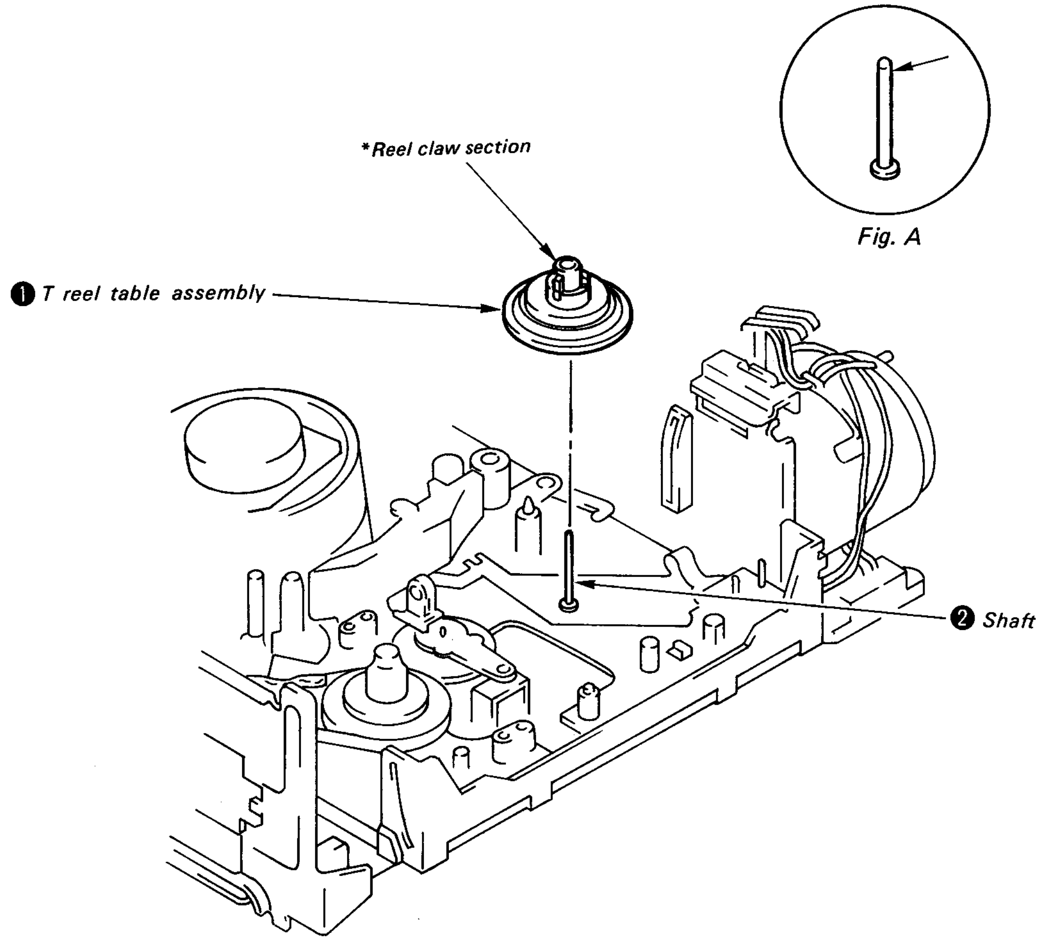


Fig. 2-15

2-3-5. Pinch Arm B Assembly

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment.
2) By referring to 2-3-1, remove reel lock lever assembly.
3) By referring to 2-3-2, remove pendulum stopper plate.
4) By referring to 2-3-4, remove T reel table assembly.
5) Remove tension coil spring ❶ from claw ❷.
6) Remove stopper washer ❸, and remove pinch arm B assembly ❹. (See Fig. 2-16)

2. Installation

1) Apply molten grease to the arrow section of pinch arm B assembly ❹, as shown in Fig. A.
2) Apply over 1/3 drop and below 1/2 drop of oil to the arrow section of shaft ❺, as shown in Fig.B.
3) See to it that pinch arm B assembly ❹ pin enters hole❻ and pinch arm A ❼, and install to shaft ❺.
4) Install stopper washer ❸.
5) Hook the tension coil spring ❶ onto claw ❷.
6) By referring to 2-3-4, install T reel table assembly.
7) By referring to 2-3-2, install pendulum stopper plate.
8) By referring to 2-3-1, install reel lock lever assembly.
9) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

Note:

By referring to 2-3-28, perform pinch stroke adjustment.

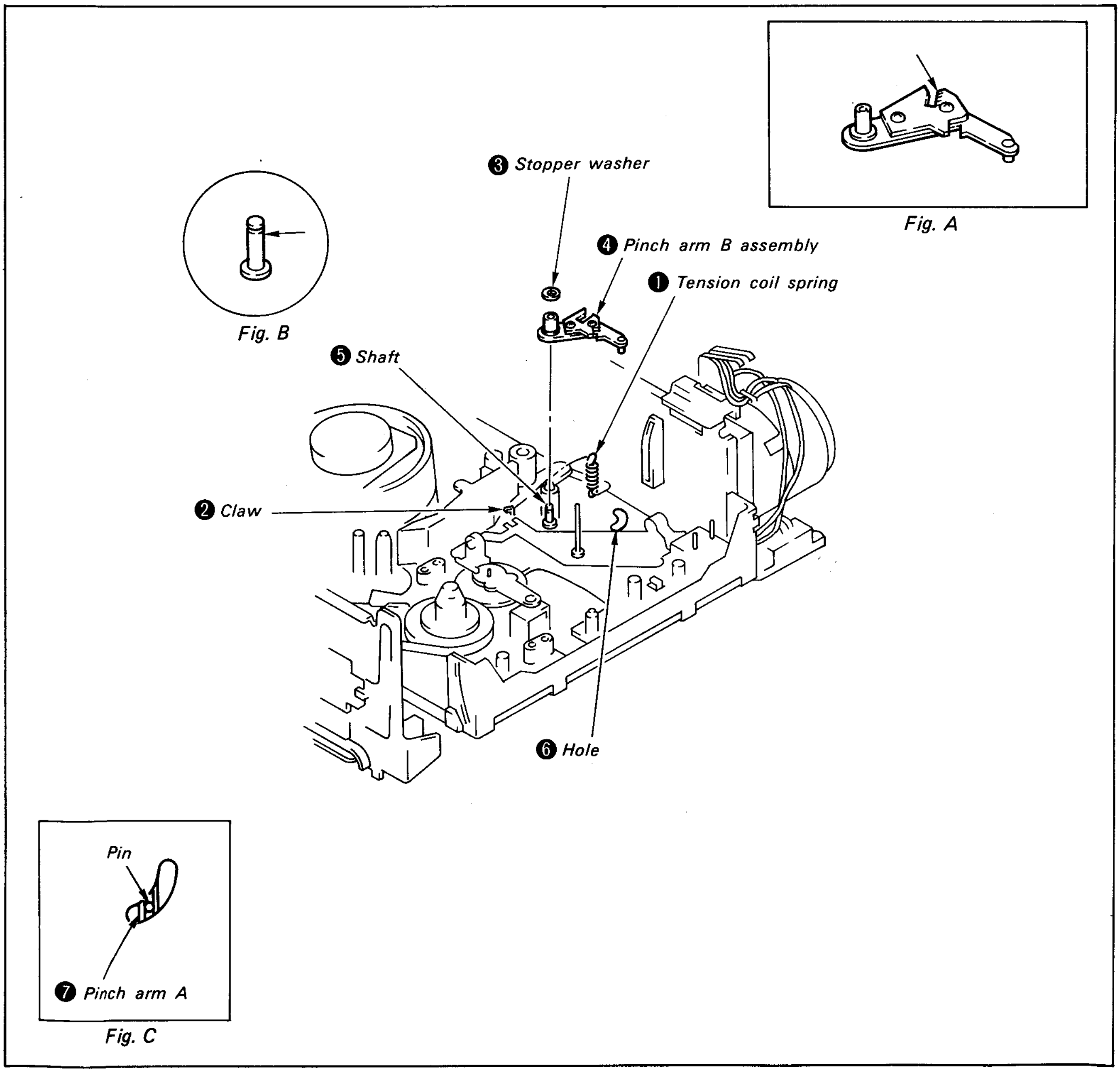


Fig. A

Fig. B

Fig. C

Fig. 2-16

2-3-6. Pinch Arm C Assembly

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-1, remove reel lock lever assembly.
3) By referring to 2-3-2, remove pendulum stopper plate.
4) Remove tension coil lever ❶ from claw ❷.
5) Remove stopper washer ❸, and remove pinch arm C assembly ❹ and pinch lever assembly ❺.
6) Remove tension coil spring ❻, and disassemble pinch arm C assembly ❹ and pinch lever assembly ❺.

Note:
Do not touch the roller section marked with *. (See Fig. 2-17)

2. Installation

1) Apply molten grease to the arrow section of pinch arm C assembly ❹, as shown in Fig. A.
2) Apply over 1/3 drop and below 1/2 drop oil to the arrow section of shaft ❼, as shown in Fig. B.
3) Install pinch lever assembly ❺ to pin arm C assembly ❹, and hook on tension coil spring ❻.
4) Install pinch arm C assembly ❹ and pin lever assembly ❺ to shaft ❼.
5) Install stopper washer ❸.
6) Hook tension coil spring ❶ to claw ❷.
7) By referring to 2-3-2, install pendulum stopper plate.
8) By referring to 2-3-1, install reel lock lever assembly.
9) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

Note:
By referring to 2-3-28, perform pinch stroke adjustment.

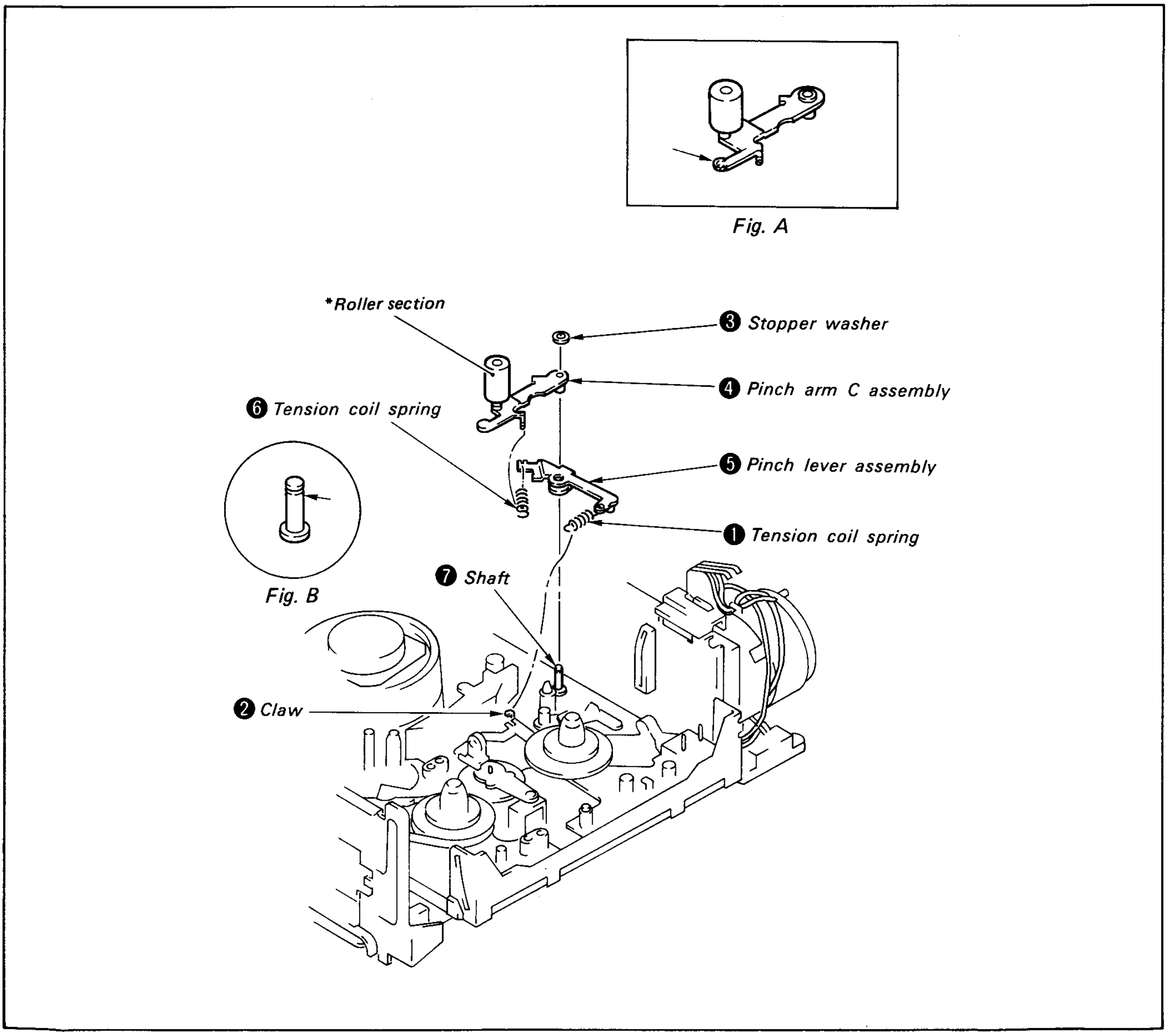


Fig. A
*Roller section
❸ Stopper washer
❹ Pinch arm C assembly
❻ Tension coil spring
❺ Pinch lever assembly
❶ Tension coil spring
❼ Shaft
Fig. B
❷ Claw

Fig. 2-17

2-3-7. TG-1 Arm Assembly

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-1, remove reel lock lever assembly.
3) By referring to 2-3-2, remove pendulum stopper plate.
4) Remove stopper washer ❶, and remove 1 screw ❷.
5) Remove tension coil spring ❸, and remove TG-1 arm assembly ❹. (See Fig. 2-18)

Note:

Do not touch the shoe section marked with *, (see Fig. 2-19) and guide section marked with *.

2. Installation

1) Apply over 1/3 drop and below 1/2 drop of oil to the arrow section of shaft ❺, as shown in Fig. A.
2) Install TG-1 arm assembly ❹ to shaft ❺.
3) Move soft brake ❻ in the direction of arrow 🅒, wind the TG-1 band assembly ❽ around the outer circumference of S reel table assembly ❼, and install 1 screw ❷.
4) Install stopper washer ❶.
5) Hook tension coil spring ❸ onto the position indicated in Fig. B.
6) By referring to 2-3-2, install pendulum stopper plate.
7) By referring to 2-3-1, install reel lock lever assembly.
8) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

Notes:

1) **Be careful so as not to have any curving in the TG-1 band assembly ❽.**
2) **By referring to 2-3-31, perform tension regulator position adjustment.**
3) **By referring to 2-3-32, perform FWD back tension adjustment.**

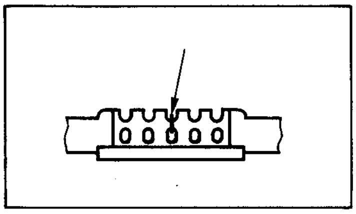
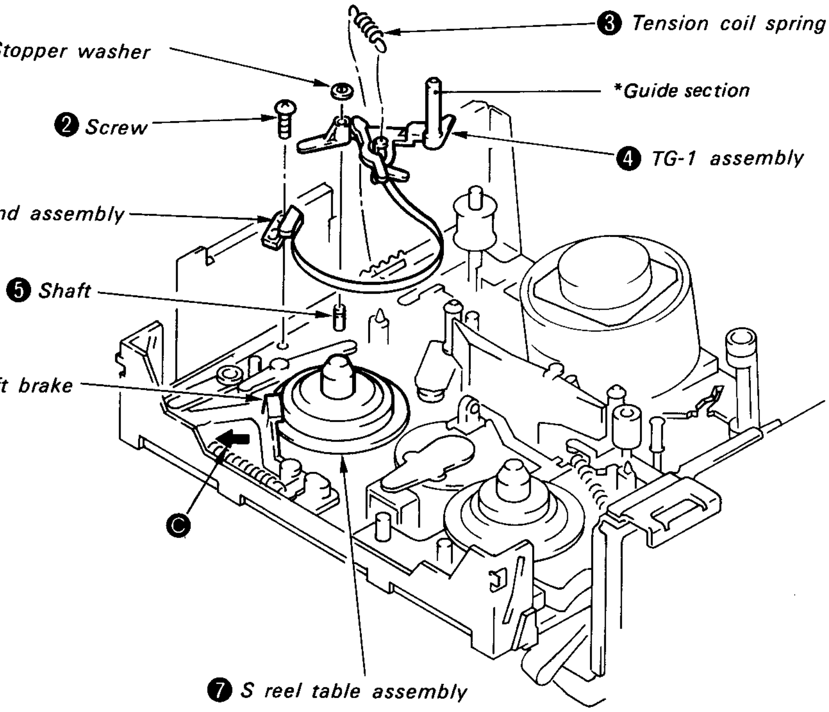


Fig. B



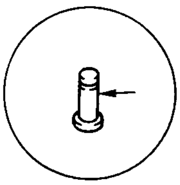


Fig. A

Fig. 2-18

2-3-8. TG-1 Band Assembly

1. Removal

1) By referring to 2-3-7, remove TG-1 arm assembly.
2) Remove claw ❷ of TG-1 band assembly from TG-1 arm assembly ❸. (See Fig.2-19)

2. Installation

1) Install claw ❷ of TG-1 band assembly ❶ into hole of TG-1 arm assembly ❸.
2) By referring to 2-3-7, install TG-1 arm assembly.

Notes:

1) Be careful so as not to have any curving in the TG-1 band assembly ❶.

2) Do not touch the shoe section marked with * and guide section marked with *.

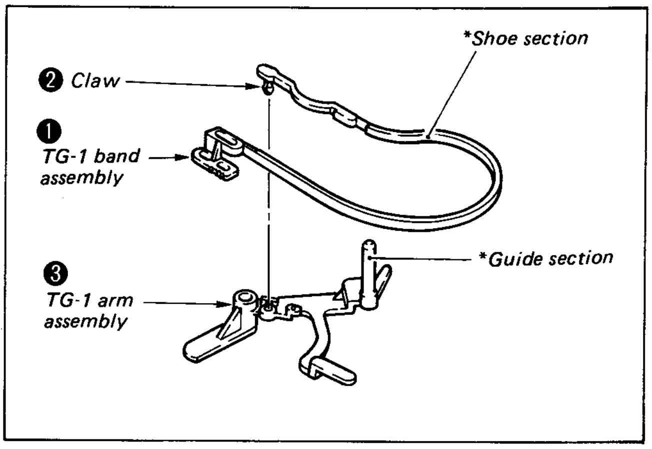

*Shoe section
❷ Claw
❶ TG-1 band assembly
*Guide section
❸ TG-1 arm assembly

Fig. 2-19

2-3-9. Soft Brake Assembly

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-1, remove reel lock lever assembly.
3) By referring to 2-3-2, remove pendulum stopper plate.
4) Remove tension coil spring ❶ from claw ❷.
5) Remove soft brake assembly ❸. (See Fig. 2-20)

2. Installation

1) Install soft brake assembly. At this time place the Ⓐ section under the LS spring ❹.
2) Hook tension coil spring ❶ onto claw ❷.
3) By referring to 2-3-2, install reel lock lever assembly.
4) By reffering to 2-3-1, install reel lock lever.
5) By reffering to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

Note:

By reffering to 2-3-29, perform soft brake torque check.

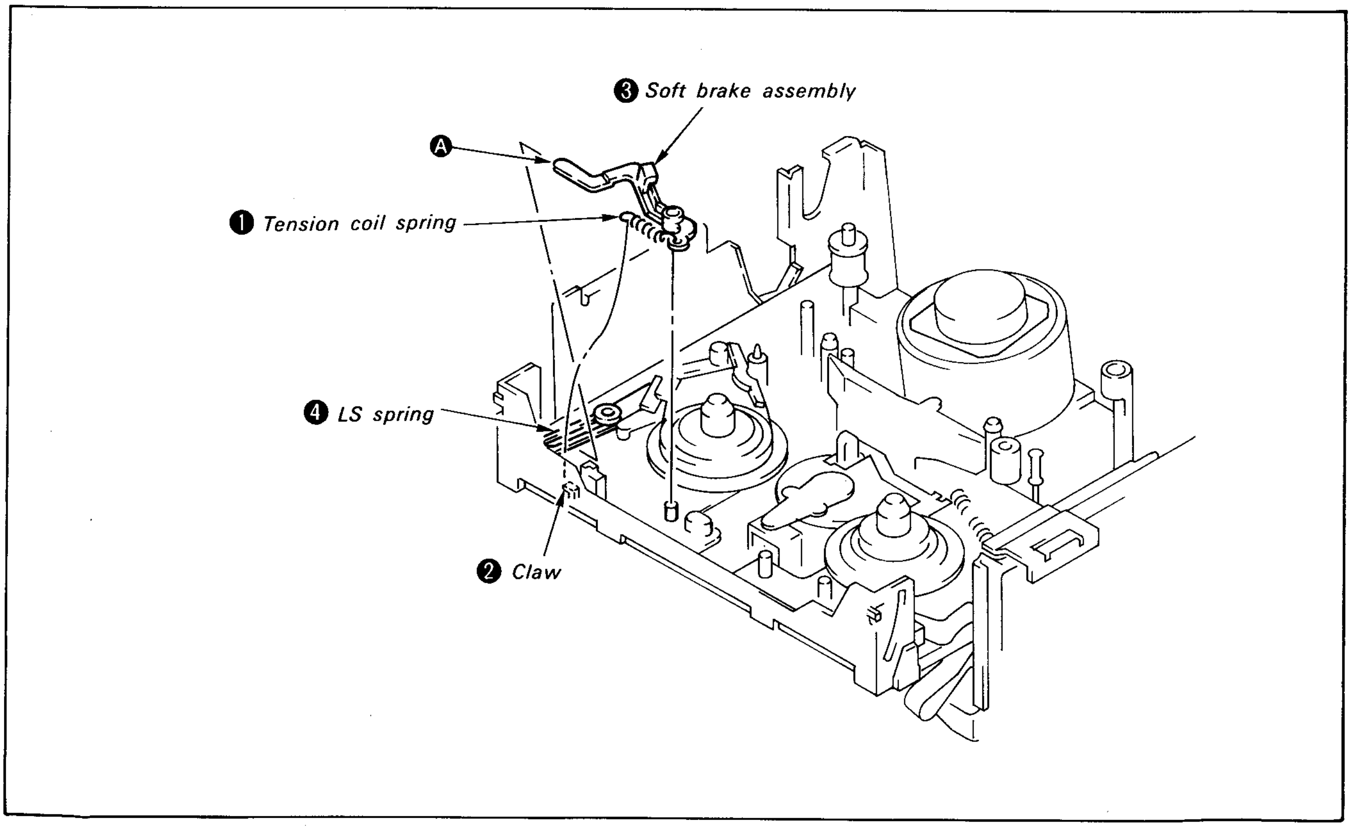

❸ Soft brake assembly
Ⓐ
❶ Tension coil spring
❹ LS spring
❷ Claw

Fig. 2-20

2-3-10. LS Chassis Assembly

1. Removal

1) By reffering to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) Set to [GUIDE LOAD after BLANK].
3) Remove stopper washer ❶.
4) Remove 2 each of screw ❷ and LS guide ❸.
5) Remove LS chassis assembly ❹ in the direction of arrow Ⓐ.
6) Remove 7 sections of the soldered sections ❻ of FP-8 flexible board ❺ with a soldering iron, as shown in Fig.B, and remove FP-8 flexible board ❺ which is stuck to the mechanical chassis. (See Fig. 2-21)

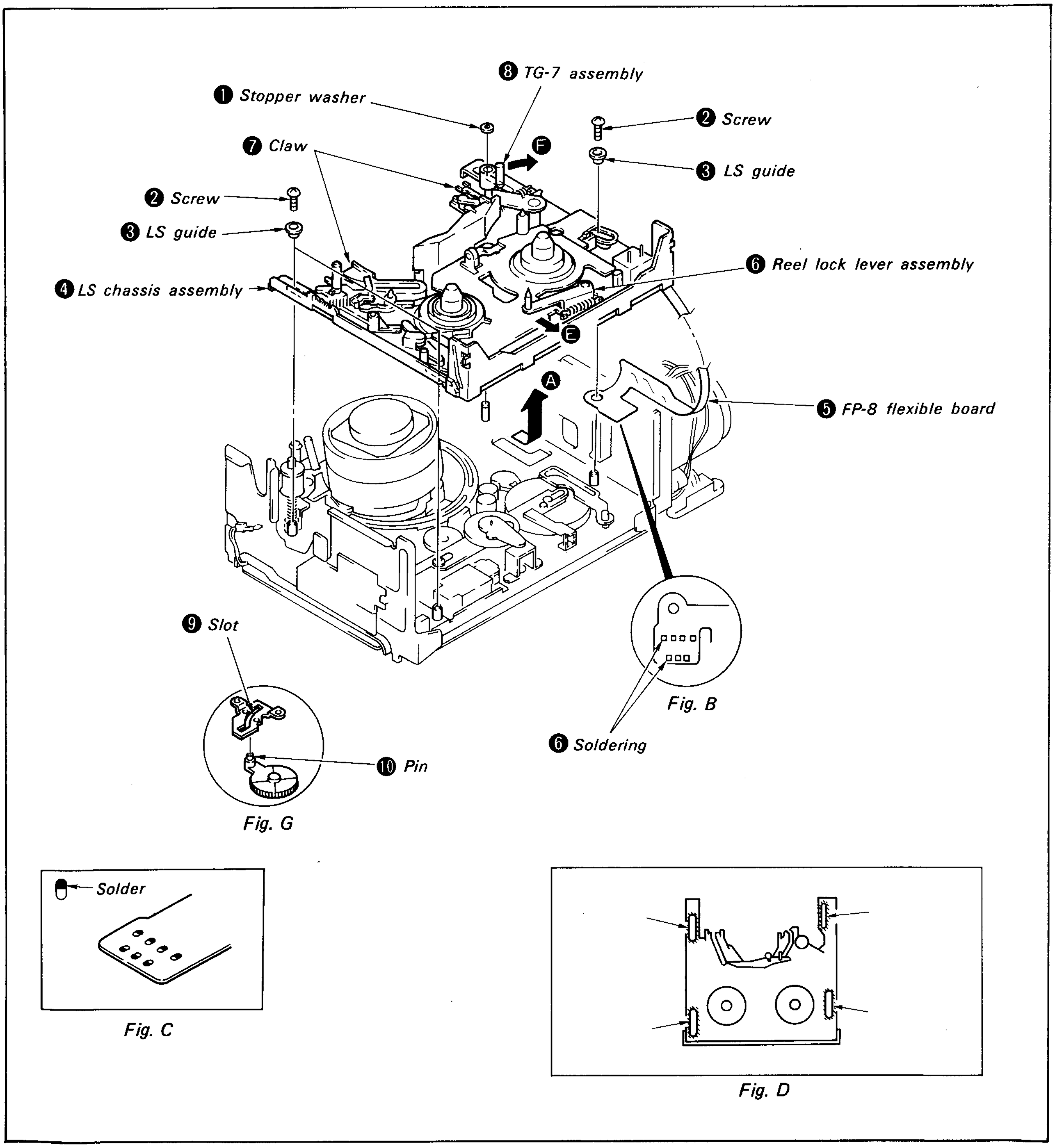

❽ TG-7 assembly
❶ Stopper washer
❷ Screw
❼ Claw
Ⓕ
❸ LS guide
❷ Screw
❸ LS guide
❻ Reel lock lever assembly
❹ LS chassis assembly
Ⓔ
Ⓐ
❺ FP-8 flexible board
❾ Slot
❿ Pin
Fig. G
Fig. B
❻ Soldering
Solder
Fig. C
Fig. D

Fig. 2-21

2. Installation

1) Peel off tape attached to the rear of FP-8 flexible board ❺, and stick on by matching the shaft of the mechanical chassis with the pattern.
2) Solder the sections of the FP-8 flexible board ❺, as shown in Fig. C.
3) Apply molten grease to the arrow section of LS chassis assembly ❹, as shown in Fig. D.
4) Move reel lock lever assembly ❻ in the direction of arrow Ⓔ, and install by matching the 4 positions of the attachment holes of LS chassis assembly ❹ with the shaft of the mechanical chassis.
5) Engage 2 positions of claw ❼ to drum base.
6) Move TG-7 assembly ❽ in the direction of arrow Ⓕ, and insert into the hole of the mechainical chassis.
7) Insert pin ❿ of LS gear assembly to slot ❾ of LS cam plate, as shown in Fig. G.
8) Confirm that it is completely installed, and install 2 each of LS guides ❸ and screws ❷ respectively.
9) Install stopper washer ❶.
10) By reffering to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

Note:
Perform soldering at 260°C and within 5 seconds.

2-3-11. TG-7 Assembly

1. Removal

1) By reffering to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) By reffering to 2-3-10, remove LS chassis assembly.
3) Turn over LS chassis assembly.
4) Remove stopper washer ❶ (f = 0.13 mm) and stopper washer ❷ (f = 0.3 mm).
5) Remove TG-7 spring ❹ from claw ❺, and remove TG-7 assembly ❸. (See Fig. 2-22)

Note:
As the FP-8 flexible board* is connected to the mechanical chassis, caution should be taken that it is not broken off.

2. Installation

1) Apply over 1/3 drop and below 1/2 drop of oil to the arrow section of shaft, as shown in Fig. A.
2) Install TG-7 assembly ❸ by way of TG-7 spring ❹.
3) Hook TG-7 spring ❹ onto claw ❺.
4) Install stopper washer ❷ and stopper washer ❶ in that order.
5) By referring to 2-3-10, install LS chassis assembly.
6) By reffering to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassete compartment assembly.
7) Perform presetting of TG-7 height.

Note:
Confirm that stopper washers ❶ and ❷ are completely inserted into the notch of the shaft.

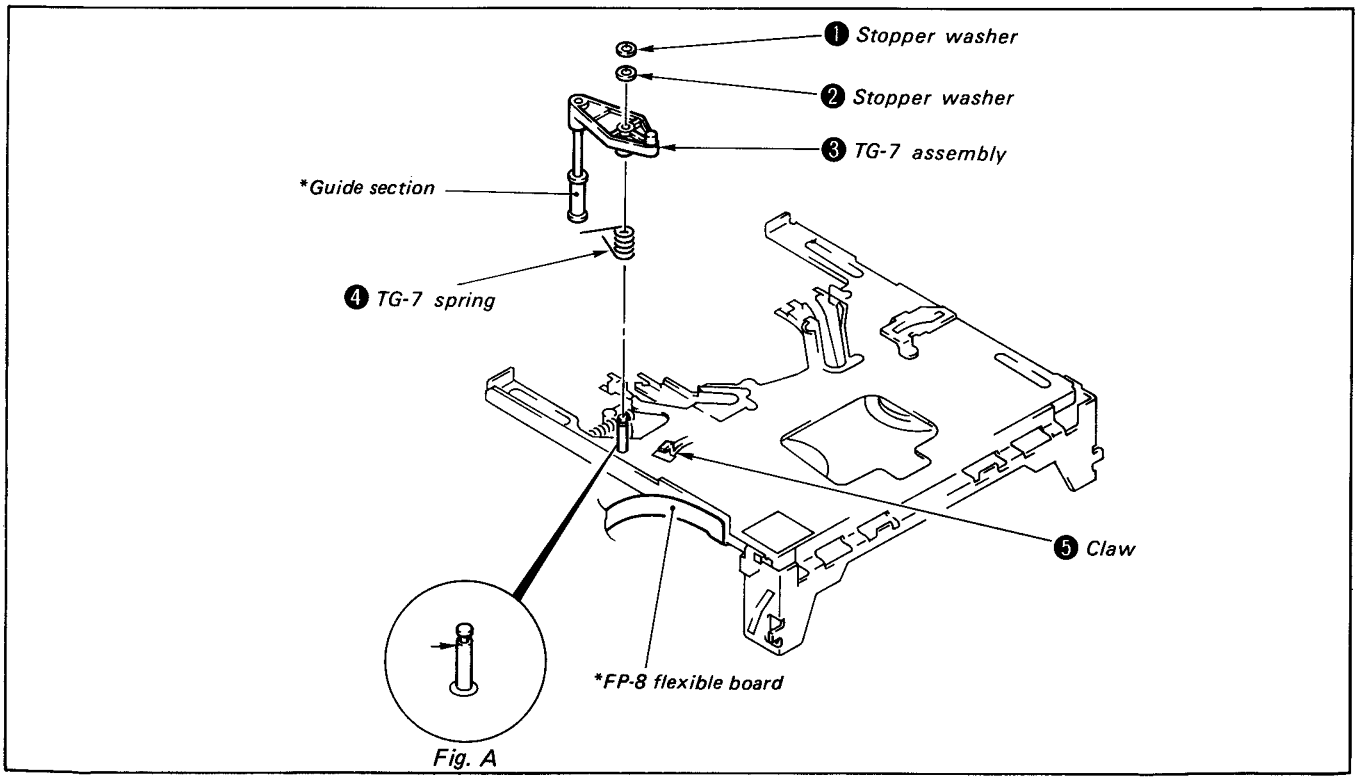


Fig. 2-22

2-3-12. Pinch Arm A Assembly

1. Removal

1) By reffering to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) By reffering to 2-3-10, remove LS chassis assembly.
3) Remove stopper washer ❶.
4) Remove pinch arm A assembly ❷. (See Fig. 2-23)

2. Installation

1) Apply over 1/3 drop and below 1/2 drop of oil to arrow section of shaft, as shown in Fig. A.
2) Apply molten grease to arrow section of pinch arm A assembly ❷, as shown in Fig. B.
3) Insert pin of pinch arm A assembly ❷ into outer notch of cam assembly ❸, and install to shaft.
4) Install stopper washer ❶.
5) By referring to 2-3-10, install LS chassis assembly.
6) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

Note:

Confirm that stopper washer ❶ is completely inserted into shaft.

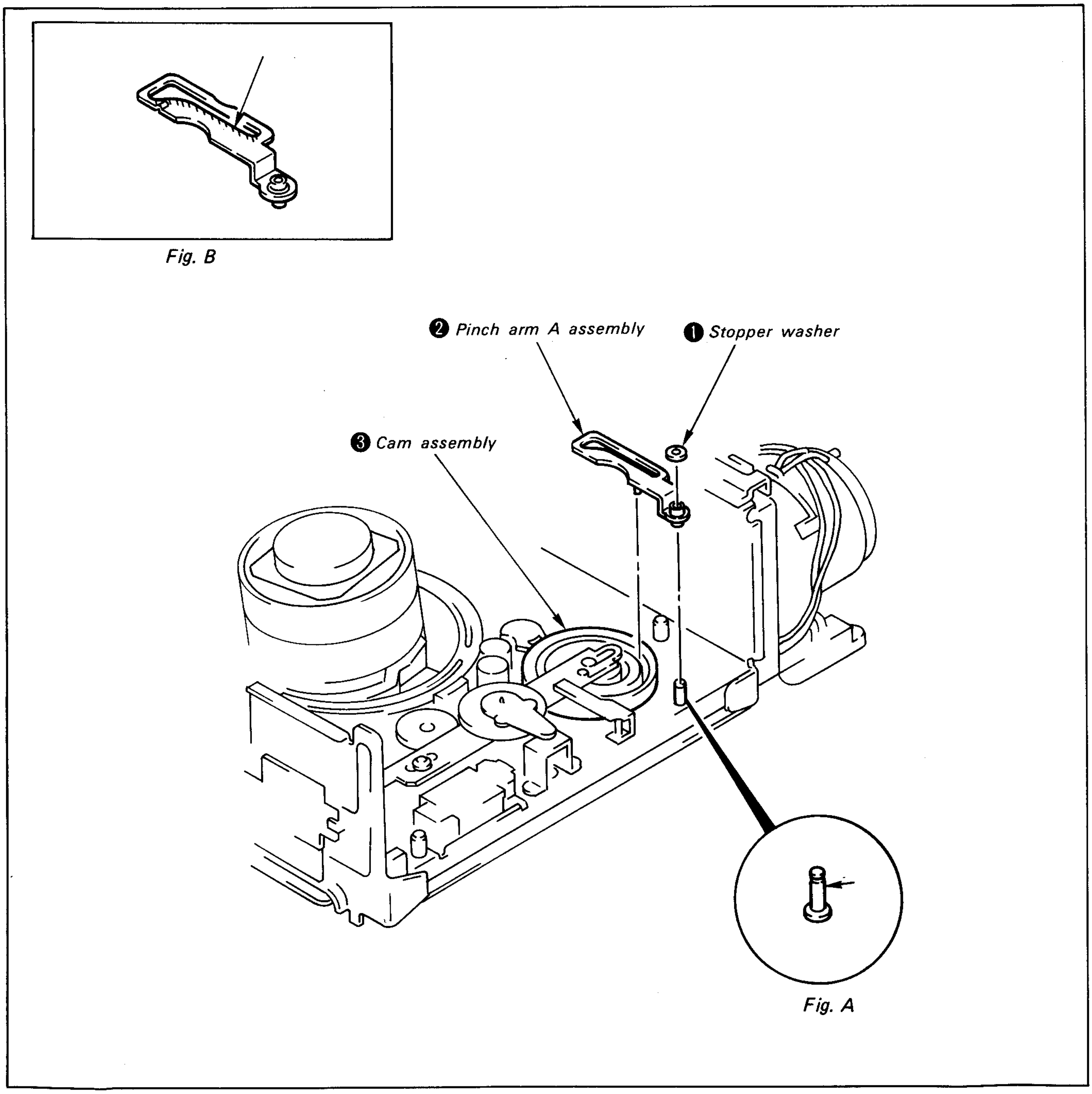


Fig. B

Fig. A

Fig. 2-23

2-3-13. M Slider Assembly

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove the cassette arm assembly and LS cassette assembly.
2) By referring to 2-3-10, remove the LS chassis.
3) Remove pendulum gear arm.
4) Remove E ring ❷ and remove reel locking lever B ❸.
5) Remove screw ❹ and washer ❺.
6) Remove lock washer ❻ and M slider assembly ❼. (See Fig. 2-24)

2. Installation

1) Apply molten grease to the arrow marked point of M slider assembly ❼, as shown in Fig. A.
2) Insert pin of the M slider assembly ❼ into the inner notch of cam assembly ❽ and install.
3) Remove lock washer ❻, washer ❺ and screw ❹.
4) Apply molten grease to the arrow marked point of reel lock lever B ❸, as shown in Fig. B.
5) Apply over 1/3 drop and below 1/2 drop of oil to the arrow marked point on the shaft, as shown in Fig. C.
6) Install reel lock lever so as to be inserted in between the notch and protrusion, as shown in Fig. D.
7) Install E ring ❷ .
8) Install pendulum gear arm ❶.
9) By referring to 2-3-10, install LS chassis assembly.
10) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

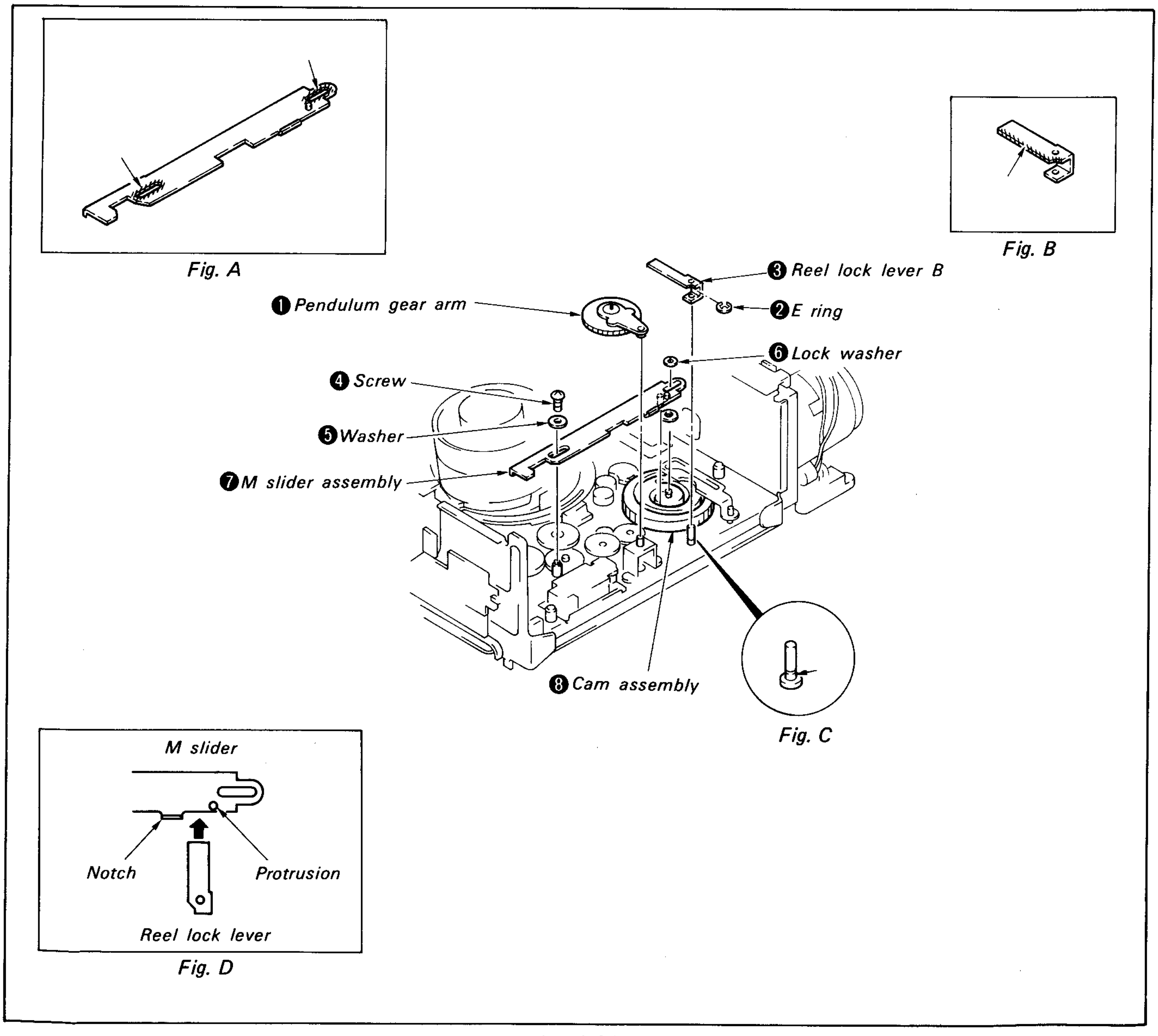


Fig. A
Fig. B
❶ Pendulum gear arm
❸ Reel lock lever B
❷ E ring
❻ Lock washer
❹ Screw
❺ Washer
❼ M slider assembly
❽ Cam assembly
Fig. C
M slider
Notch
Protrusion
Reel lock lever
Fig. D

Fig. 2-24

2-3-14. TG-4 Base Assembly and TG-5 Base Assembly

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-10, remove LS chassis assembly.
3) Set into GUIDE LOAD mode and remove TG-4 base assembly ❶ and TG-5 base assembly ❷ from the groove of the drum base.
4) Turn pin ❹ of TG-4 base assembly ❶ in the direction of arrow Ⓐ and remove from notch ❸. (See Fig. 2-25)
5) Remove pin ❺ from the hole of notch ❸.
6) Remove TG-5 base assembly ❷ from notch ❼ by moving it in the direction of arrow Ⓐ (See Fig. 2-26)
7) Remove TG-5 base assembly ❷ from pin ❻. (See Fig. 2-27)

Note:

Be sure not to contact with the guide section marked with *.

2. Installation

1) Insert pin ❻ into the hole of TG-5 base assembly.
2) Insert TG-5 base assembly ❷ beneath notch ❼ by moving it in the direction of arrow B.
3) Insert pin ❺ of TG-5 base assembly ❶ into the hole of notch❸.
4) Set pin ❹ of TG-4 base assembly ❶ into notch ❸ by turning it in the direction of arrow Ⓑ.
5) Confirm that the TG-4 base assembly ❶ and TG-5 base assembly ❷ have been installed in the states as shown in Fig. C respectively.
6) Set TG-4 base assembly ❶ and TG-5 base assembly ❷ into the groove of the drum base while slowly turning BLANK after GUIDE LOAD mode. If the position are not matched, the assembly is caught by the entrance of the groove and, accordingly, it may be unable to move. Therefore, be sure to set it into the groove while matching the positions very carefully.
7) By referring to 2-3-10, install LS chassis assembly.
8) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

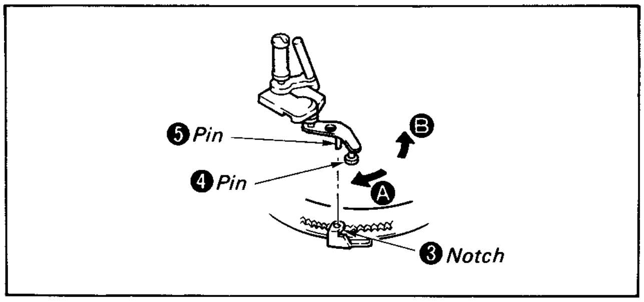


Fig. 2-25

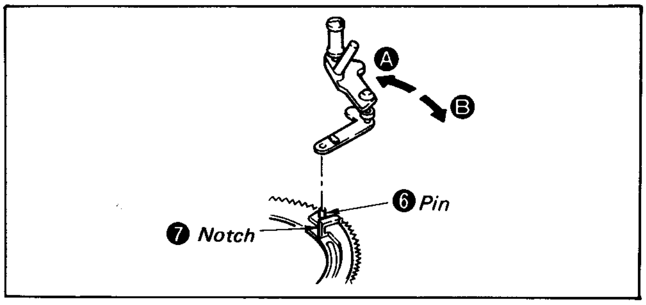


Fig. 2-26

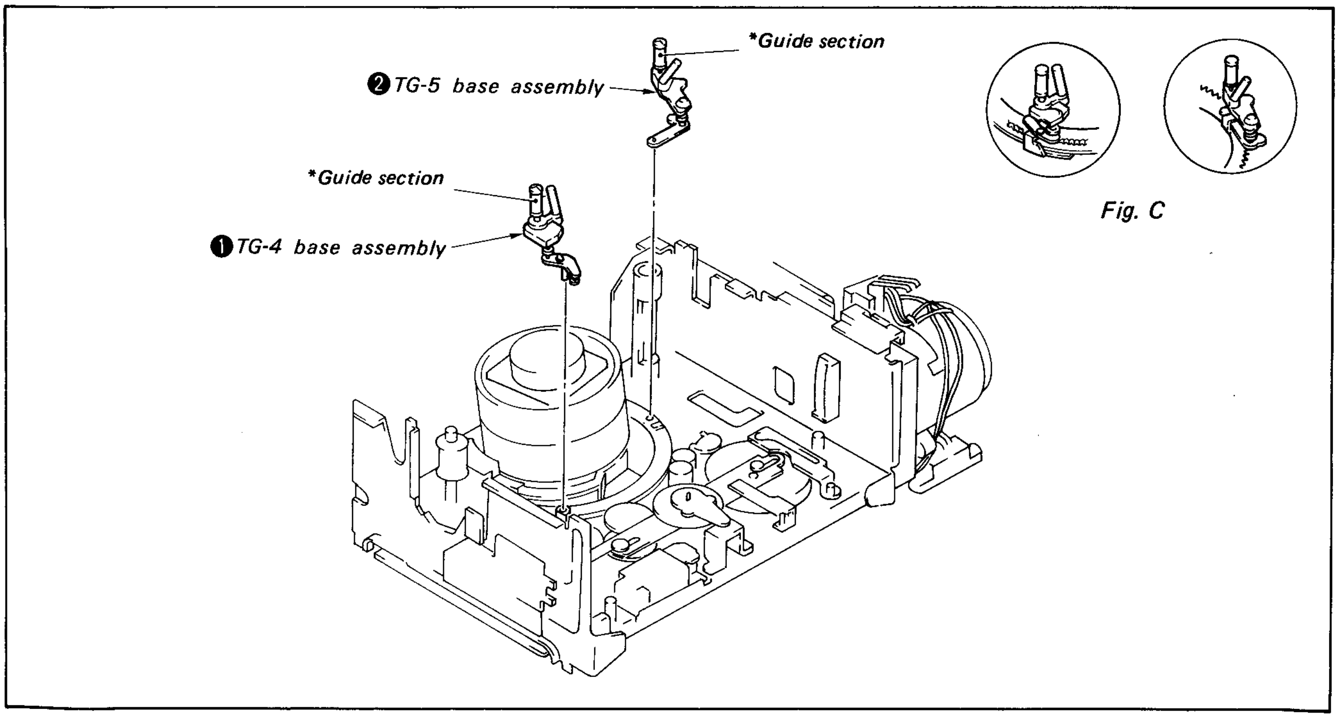


Fig. 2-27

2-3-15. Loading Slider T Assembly

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-10, remove LS chassis assembly.
3) By referring to 2-3-14, remove TG-4 base assembly and TG-5 base assembly.
4) By referring to 2-3-25, remove drum assembly.
5) Remove screw ① , and remove plate spring ② and T slider stopper ③.
6) Remove screw ④ and remove slider supporter ⑤.
7) Remove 2 lock washers ⑥ and remove loading slider T assembly ⑦. (See Fig. 2-28)

2. Installation

1) Apply molten grease to the arrow marked point of plate spring T ②, as shown in Fig.A.
2) Apply molten grease to the arrow marked point of loading slider T assembly ⑦, as shown in Fig. B.
3) Install loading slider T assembly ⑦ by matching hole ⑧ of the loading slider T assembly to hole ⑨ of the loading slider S assembly.
4) Install 2 locking washers ⑥.
5) Install slider supporter ⑤ with screw ④.
6) Install T slider stopper ③ and plate spring ② with screw 1 .
7) By referring to 2-3-14, install drum assembly.
8) By referring to 2-3-14, install TG-4 base assembly and TG-5 base assembly.
9) By referring to 2-3-10, install LS chassis assembly.
10) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

Notes:

1) Be sure to confirm that lock washer ② has been engaged completely into the groove of the shaft.

2) By referring to 2-3-17, perform phase adjustment after loading slider T assembly ⑦ is installed.

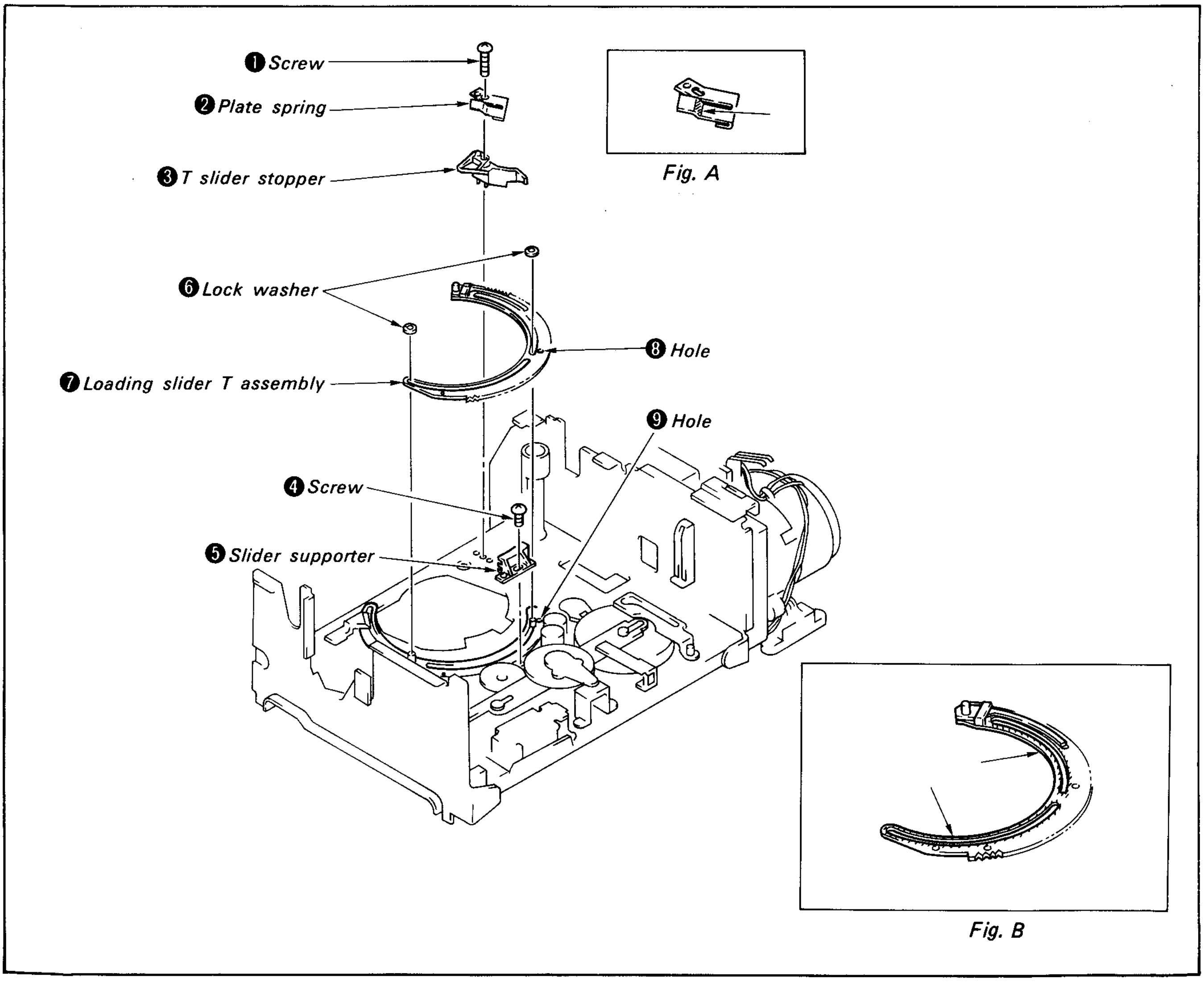


Fig. 2-28

2-3-16. Loading Slider S Assembly

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-10, remove LS chassis assembly.
3) By referring to 2-3-14, remove TG-4 base assembly and TG-5 base assembly.
4) By referring to 2-3-25, remove drum assembly.
5) By referring to 2-3-15, remove loading slider T assembly.
6) Remove screw ❶ and remove S slider stopper ❷ .
7) Remove 2 guide rollers ❸ and remove loading slider S assembly ❹.(See Fig.2-21)

2. Installation

1) Apply molten grease to the arrow marked point of shaft ❺, as shown in Fig. A.
2) Apply molten grease to the arrow marked point of loading slider S assembly ❹ , as shown in Fig.B.
3) Install loading slider S assembly ❹ by matching hole ❻ of loading slider S assembly to hole ❼ of the mechanical chassis.
4) Install 2 guide rollers ❸ .
5) Install 2 S slider stopper ❷ with screw ❶.
6) By referring to 2-3-15, install loading slider T assembly.
7) By referring to 2-3-25, install drum assembly.
8) By referring to 2-3-14, install TG-4 base assembly and TG-5 base assembly.
9) By referring to 2-3-10, install cassette arm assembly and LS cassette compartment assembly.
10) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

Note:

By referring to 2-1-1 and 2-1-2, perform phase adjustment after loading slider T assembly has been installed.

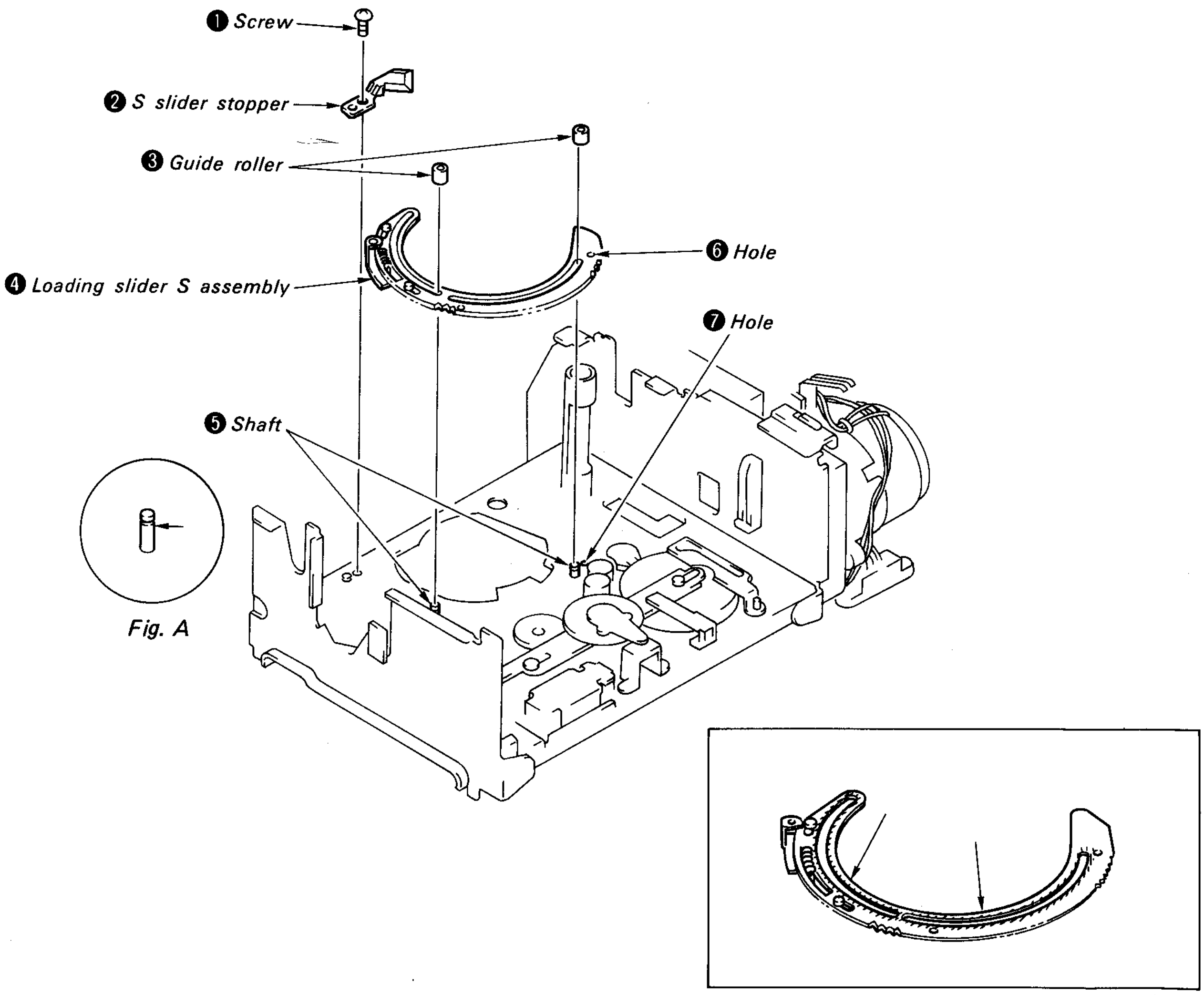


Fig. A

Fig. B

Fig. 2-29

2-3-17. Phase Adjustment

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-10, remove LS chassis.
3) By referring to 2-3-14, remove TG-4 base assembly and TG-5 base assembly.
4) By referring to 2-3-25, remove drum assembly. (See Fig. 2-30)

2. Adjustment

1) Confirm that it has been turned into BLANK after GUIDE LOAD mode.
2) Adjust the positions of the respective holes of loading slider T assembly ❷, loading slider S assembly ❸, and the mechanical chassis, and then insert a rod ❶ of approximately 1 mm in diameter into the holes.
3) Adjust the position of the hole of LS gear C assembly and the position of the hole of the mechanical chassis, and insert rod ❶ of aproximately 1 mm in diameter into the holes.
4) Adjust by turning loading gear M ❺ so that the mark on it comes to the loading gear S ❻ side, as shown in Fig. A.
5) Remove lock washer ❽ and LS gear A ❼, and adjust so that both holes of loading slider T assembly ❷ and LS gear A ❼ come on the same straight line as shown in Fig. B, and preform installation.
6) Install lock washer ❽.

Note:

Be sure to confirm that lock washer ❽ is set completely in the groove of the shaft.

3. Installation

1) By referring to 2-3-25, install drum assembly.
2) By referring to 2-3-14, install TG-4 base assembly and TG-5 base assembly.
3) By referring to 2-3-10, install LS chassis assembly.
4) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette assembly.

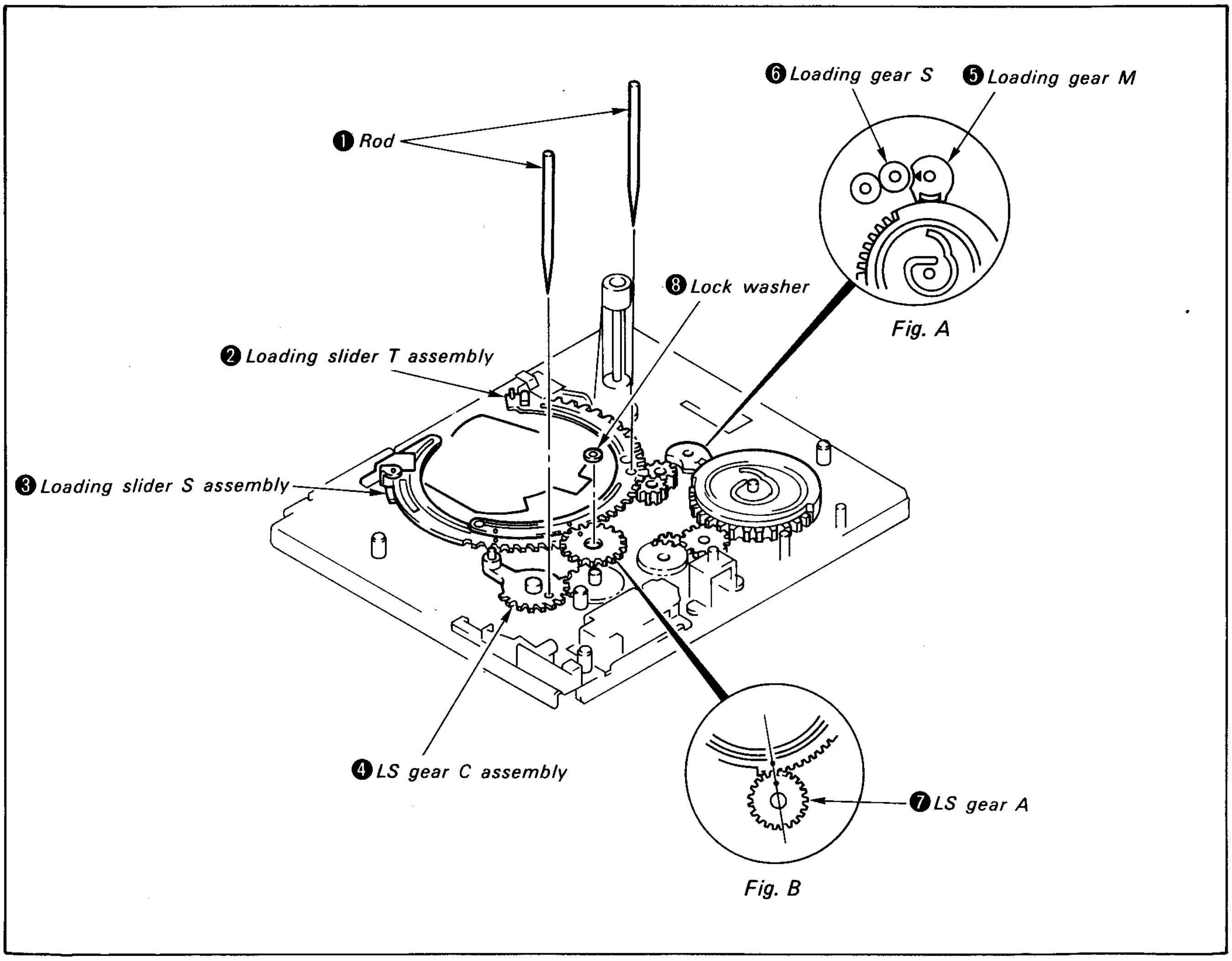


Fig. 2-30

2-3-18. Gear Train Operation Check

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-10, remove LS chassis assembly.
3) By referring to 2-3-14, remove TG-4 base assembly and TG-5 base assembly.
4) By referring to 2-3-35, remove drum assembly.
5) By referring to 2-3-21, remove LM motor assembly. (See Fig. 2-31)

2. Checking

1) Insert a point of tweezers into the hole of the cam assembly.
2) Rotate the cam assembly once around in the direction of arrow Ⓐ, and then once around in the direction of arrow Ⓑ. Repeat the above 3 times.
3) At this point, confirm that the individual gears and sliders shown in Fig. are being operated smoothly, and there are no abnormal loading.

Note:

When making cam assembly ❶ to rotate with the point of tweezers, exercise cautions so as not to cause flaw to the mechanical chassis.

3. Installation

1) By referring to 2-3-21, install LM motor assembly.
2) By referring to 2-3-25, install drum assembly.
3) By referring to 2-3-14, install TG-4 base assembly and TG-5 base assembly.
4) By referring to 2-3-10, install LS chassis assembly.
5) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

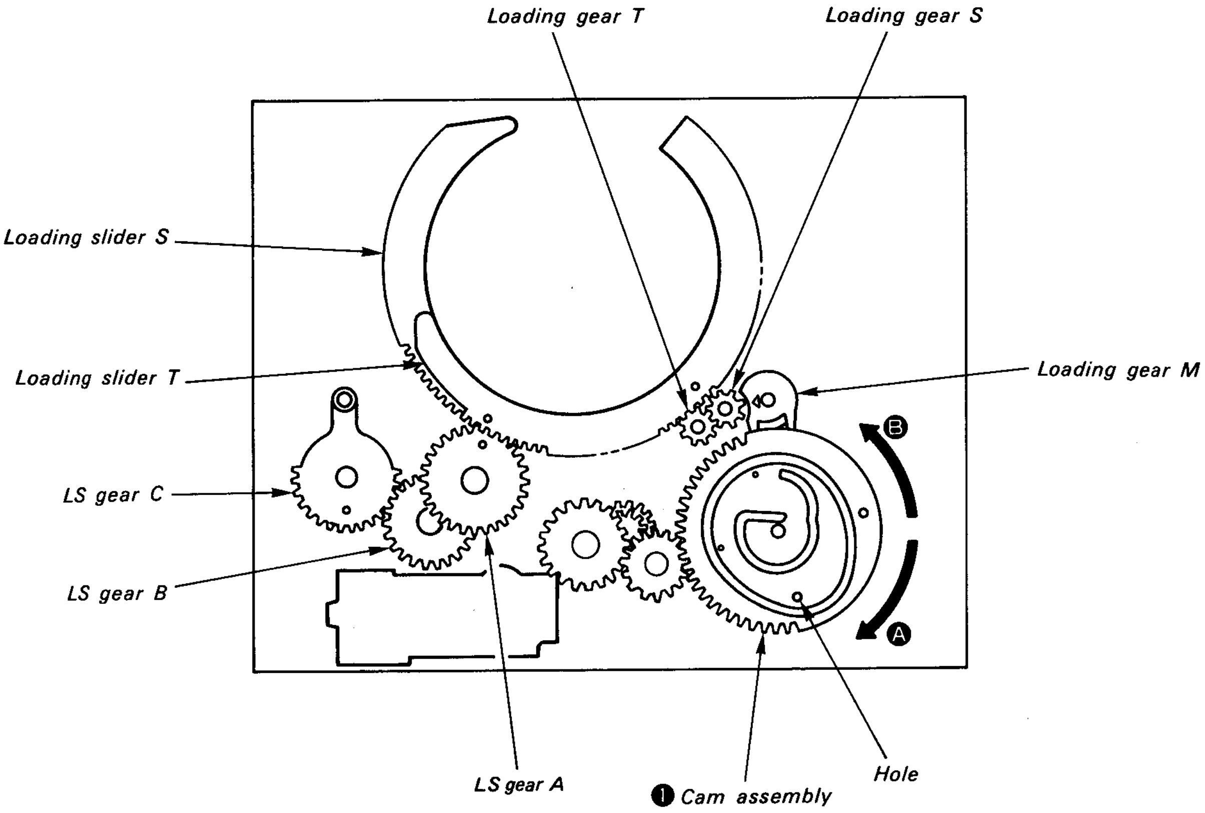


Fig. 2-31

2-3-19. FP-8 Board

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-10, remove LS chassis assembly.
3) By referring to 2-3-4, remove T reel table assembly.
4) Remove screw ❶ and peel off FP-8 board ❷ which is stuck to the LS chassis.
5) When peeling off FP-8 board 2, care must be taken so as not to tear it. (See Fig. 2-32)

2. Installation

1) Peel off the sheet covering of the adhesion tape on the rear side of FP-8 board ❷ and match the shaft hole to shaft ❸ of the LS chassis and claw, and thus the tape is adhered.
2) Adjust dowel ❺ and install it with screw ❶.
3) By referring to 2-3-4, install T reel table assembly.
4) By referring to 2-3-10, install LS chassis assembly.
5) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

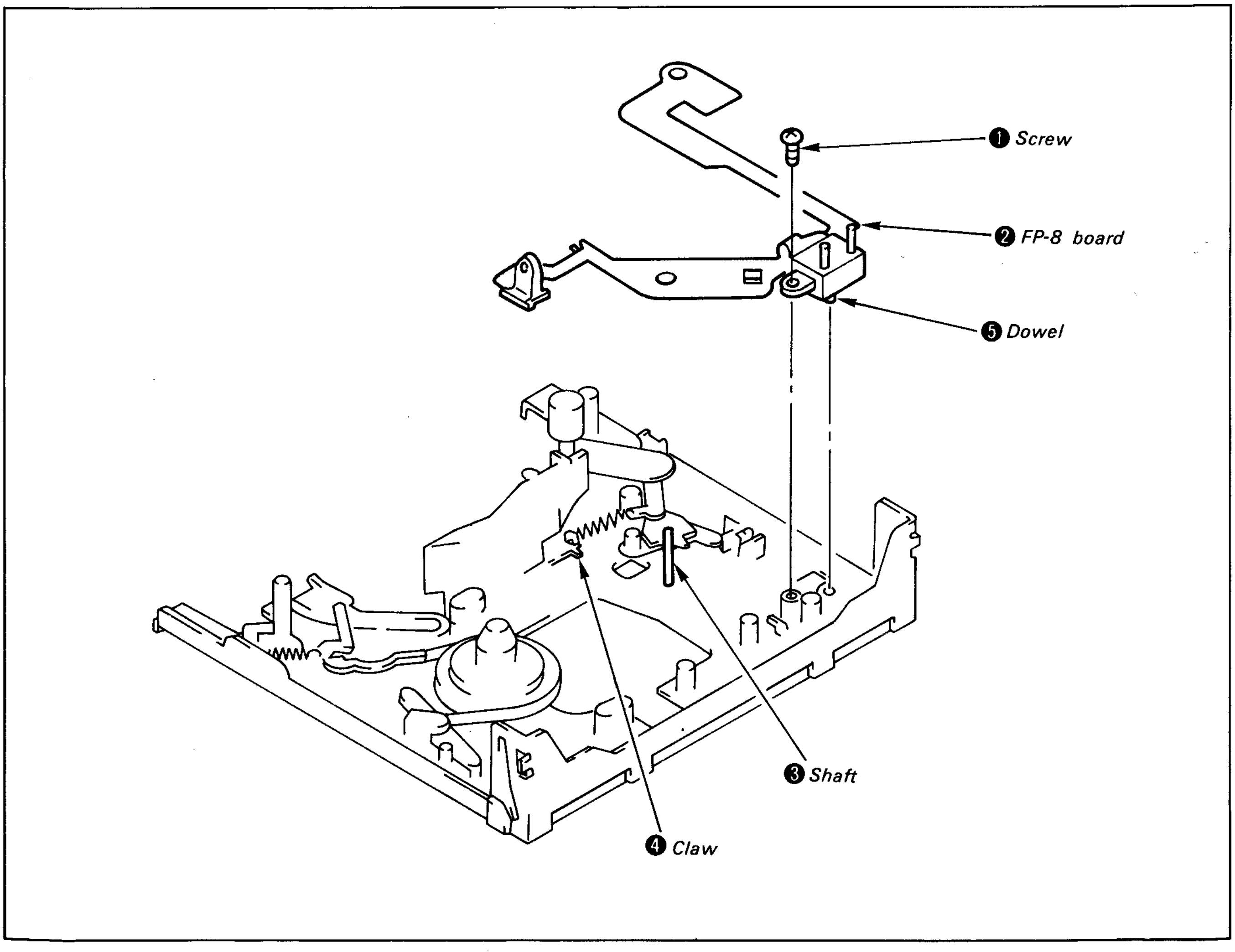


Fig. 2-32

2-3-20. Cassette Compartment Lock Assembly

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-10, remove LS chassis assembly.
3) Remove 2 screws ❶ and 3 screws ❷ and then, remove frame B assembly ❸.
4) Remove ES-11 board ❹.
5) Remove screw ❺ and remove CCD SW ❻.
6) Remove screw ❼ and screw ❽, and remove cassette compartment lock assembly ❾. (See Fig. 2-33)

2. Installation

1) Install CCD SW ❻ with screw ❺.
2) Match cassette compartment lock assembly ❾ to dowel ❿, and install.
3) Install screw ❼ loosely and then tighten screw ❽ and screw ❼ successively in this order.
4) Install ES-11 board ❹ to frame B assembly ❸.
5) Install frame B assembly ❸ with 2 screws ❶ and 3 screws ❷ successively in this order.
6) By referring to 2-3-10, install LS chassis assembly.
7) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

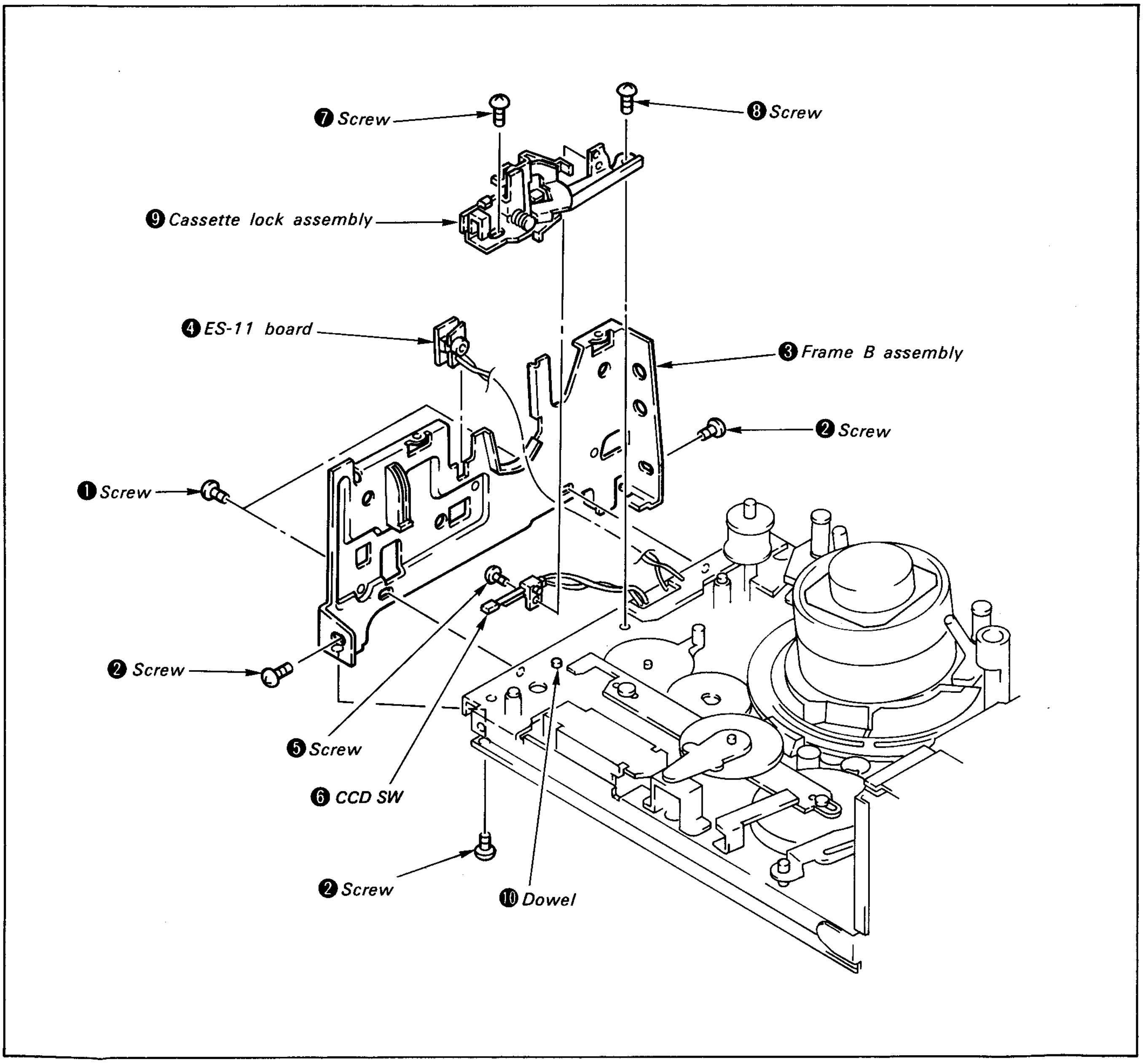

❼ Screw
❽ Screw
❾ Cassette lock assembly
❹ ES-11 board
❸ Frame B assembly
❷ Screw
❶ Screw
❷ Screw
❺ Screw
❻ CCD SW
❷ Screw
❿ Dowel

Fig. 2-33

2-3-21. LM Motor Assembly

1. Removal

1) By referring to 2-3-22, remove MD-10 board.
2) Remove screws ❶, ❷ and ❸, and remove the LM motor assembly (❹, ❺ and ❽).
3) Disassemble LM under cover assembly ❹ and DC motor ❽ which are attached by magnetic force.
4) Remove loading gear A ❺ from shaft ❼.
5) Melt the soldered 2 points shown in Fig.A and remove FP-14 flexible board ❻. (See Fig. 2-34)

2. Installation

1) Solder the 2 points shown in Fig.A and install FP-14 flexible board ❻.
2) Apply 1/3 drop of oil onto shaft ❼ and install loading gear A ❺.
3) Apply a size of one rice grain of SONY grease to worm gear ❾.
4) Install LM under cover assembly ❹ and DC motor ❽.
5) Install LM under cover assembly ❹ to pin ❿ of the mechanical chassis by matching the notch of it.
6) Install screws ❶, ❷ and ❸ loosely, and tighten screw ❶, ❷ and ❸ successively in this order.

Note:

Be sure to perform the soldering at 260°C within 5 seconds.

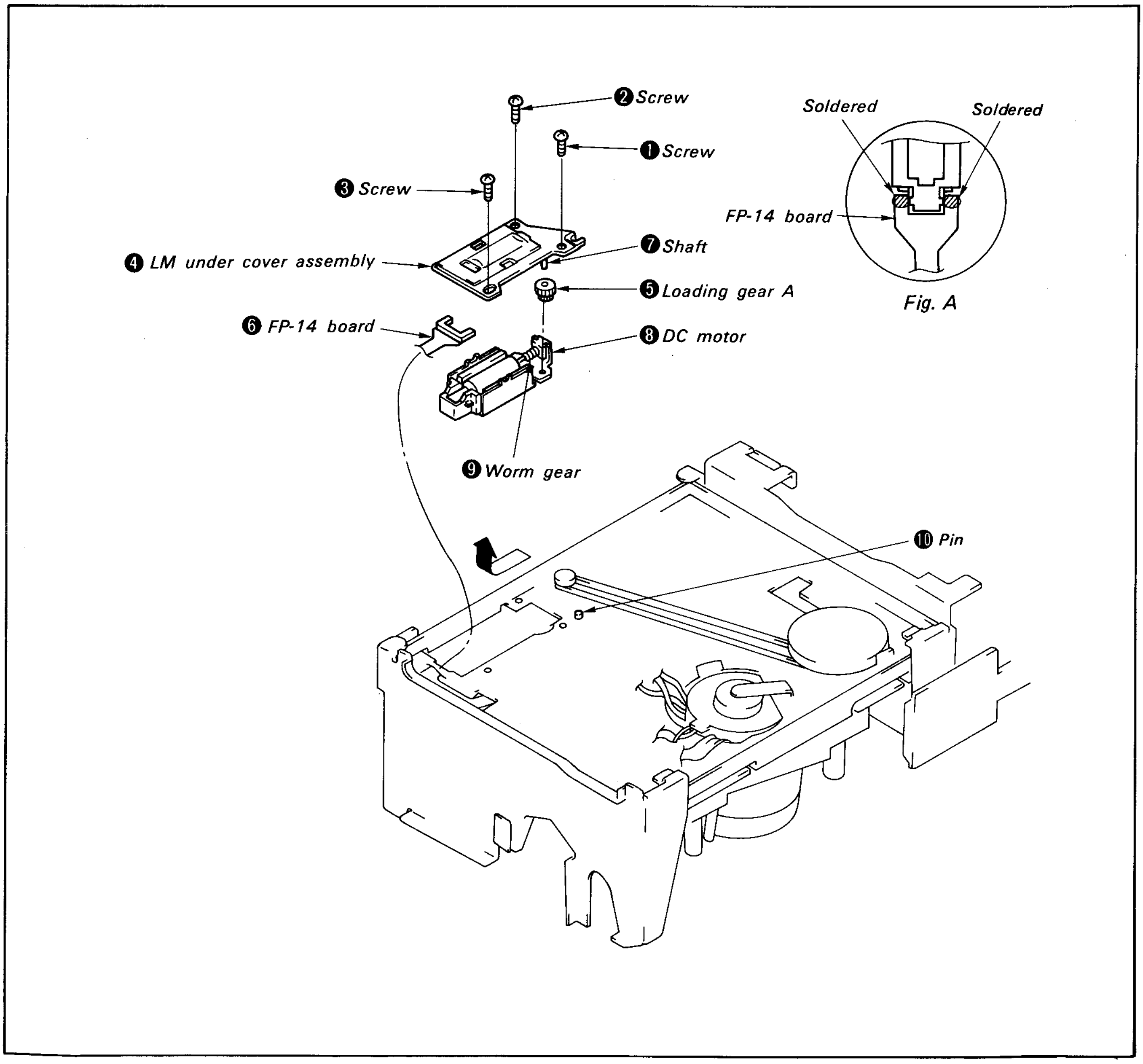

❷ Screw
❶ Screw
❸ Screw
❹ LM under cover assembly
❼ Shaft
❺ Loading gear A
❻ FP-14 board
❽ DC motor
❾ Worm gear
❿ Pin
Soldered
Soldered
FP-14 board
Fig. A

Fig. 2-34

2-3-22. MD-10 Board

1. Removal

1) Remove screws ❶, ❷ and ❸, and remove camera assembly ❹.
2) Turn the main body over and remove screw ❺, and then remove FP-16 board ❻.
3) Remove 2 screws ❼ and open MD-10 board ❽ in the direction of arrow.
4) Remove 4 connectors ❾ from MD-10 board ❽. (Fig. 2-35)

2. Installation

1) Install 4 connectors ❾ to MD-10 board ❽.
2) Install MD-10 board ❽ with 2 screws ❼ by inserting 2 fiber washers ❿ in between.
3) Install FP-16 board ❻ with screw ❺.
4) Install camera assembly ❹ with screws ❶, ❷ and ❸ by tightening them successively in this order.

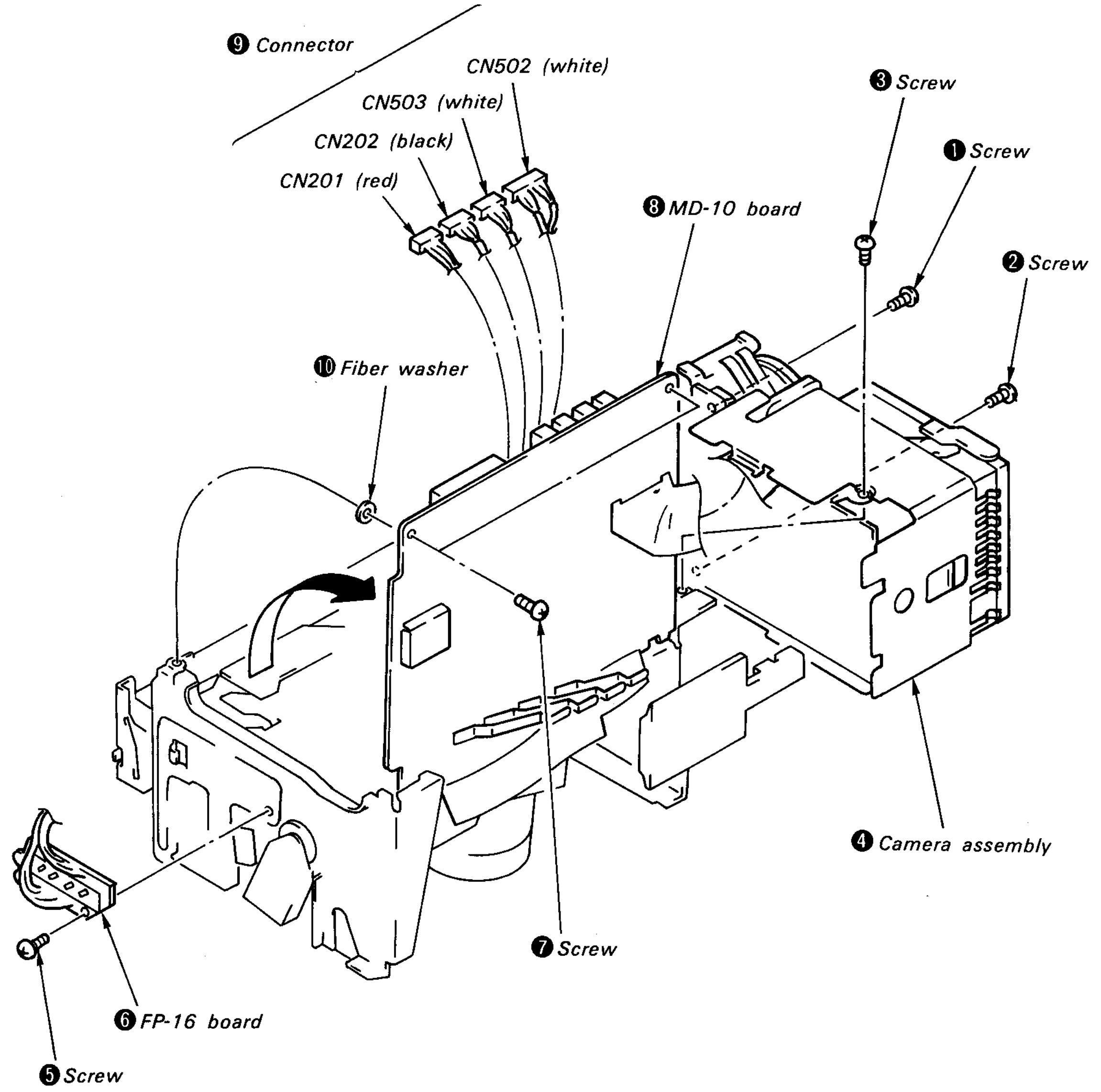

❾ Connector
CN502 (white)
CN503 (white)
CN202 (black)
CN201 (red)
❸ Screw
❶ Screw
❽ MD-10 board
❷ Screw
❿ Fiber washer
❹ Camera assembly
❼ Screw
❻ FP-16 board
❺ Screw

Fig. 2-35

2-3-23. Capstan Motor Assembly

1. Removal

1) Remove screws ❶ and ❷, and remove capstan motor assembly ❺.
2) Remove lock washer ❻ and conversion gear assembly ❼, and remove relay belt ❸. (See Fig. 2-36)

Note:

Do not touch the capstan motor shaft marked with * oil seal marked with * and rotor marked with *.

2. Installation

1) As shown in Fig.A, apply over 1/3 drop and below 1/2 drop of oil to the arrow marked point of shaft ❽.
2) Install conversion gear assembly ❼ to shaft ❽ while applying relay belt ❸ to the assembly.
3) Install lock washer ❻.
4) Install capstan motor assembly ❺ to mechanical chassis while applying relay belt ❸ to pulley ❹.
5) Be sure to confirm that the capstan motor and mechanical chassis become horizontal, and install them with screws ❶ and ❷ successively in that order.

Notes:

1) **Be sure to confirm that lock washer ❻ is being set completely into the groove of shaft ❽.**
2) **Care should be taken so as not to leave the relay belt ❸ in the stretched state.**

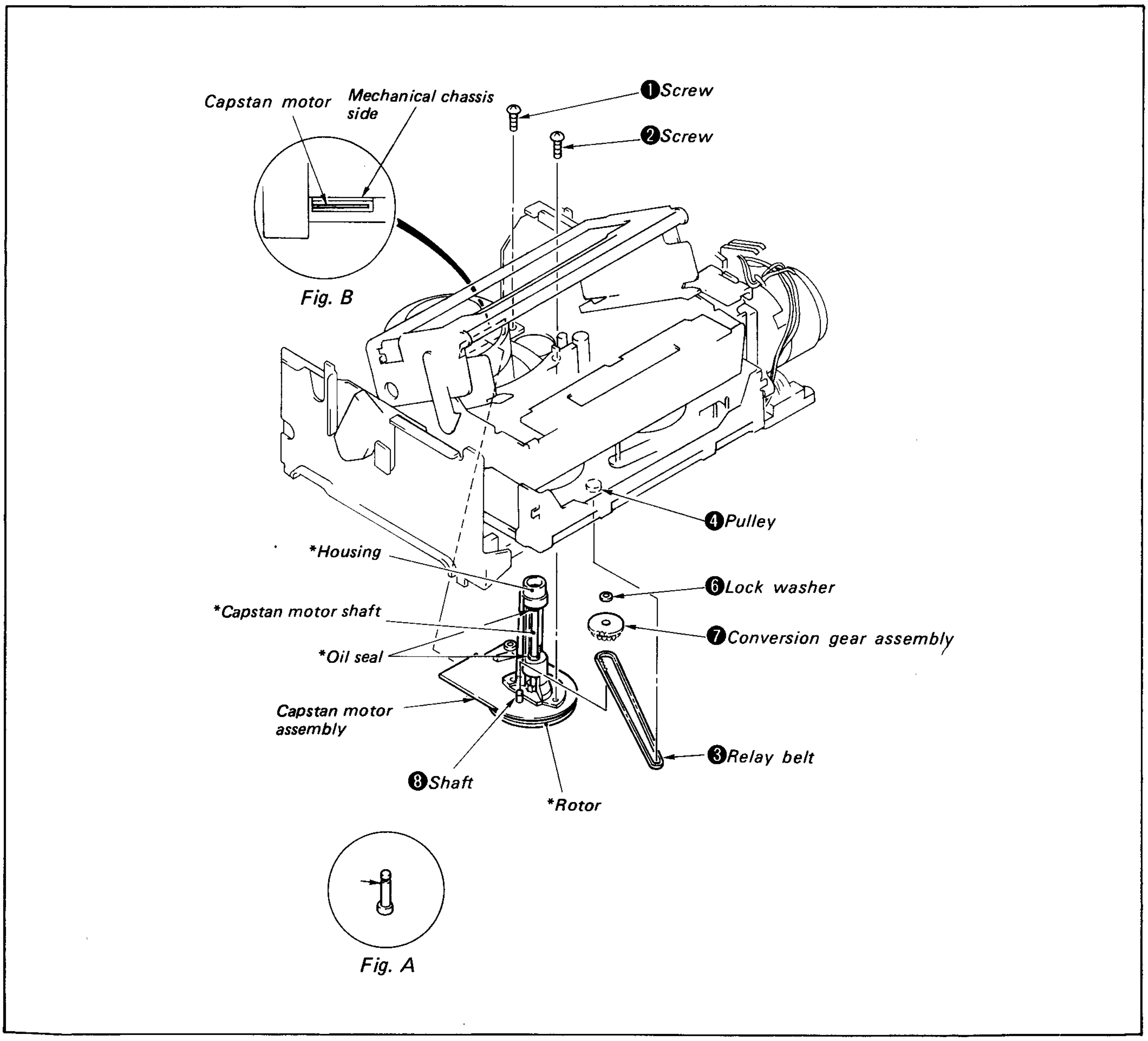

Capstan motor
Mechanical chassis side
Fig. B
❶Screw
❷Screw
❹Pulley
*Housing
❻Lock washer
*Capstan motor shaft
❼Conversion gear assembly
*Oil seal
Capstan motor assembly
❸Relay belt
❽Shaft
*Rotor
Fig. A

Fig. 2-36

2-3-24. TG-2

1. Removal

1) Remove TG-2 nut ❶.
2) Remove upper flange receptacle ❷, TG-2 flange ❸, TG-2 roller ❹, TG-2 sleeve ❺, TG-2 flange ❻, TG-2 lower flange receptacle ❼ and pressure coil spring ❽. (See Fig. 2-37)

Notes:

1) **When removing TG-2 nut ❶, taken precautions not to scatter the parts which are being pressed by the pressure coil spring ❽.**
2) **Be sure to use gloves when installing and removing TG-2 flange ❸ and TG-2 roller ❹.**

2. Installation

1) Install pressure coil spring ❽, TG-2 lower flange receptacle ❼, TG-2 lower flange ❻, TG-2 sleeve ❺, TG-2 roller ❹, TG-2 flange ❸ and upper flange receptacle ❷.
2) Install TG-2 nut ❶.
3) Perform TG-2 height preset.

Note:

Be sure to install TG-2 roller upper and lower sides correctly while observing Fig. A.

3. TG-2 height preset

1) Push up upper flange receptacle ❾ in the direction of arrow as shown in Fig. A.
2) Screw TG-2 nut ❿ into TG-2 shaft ⓫ until its height becomes the same level of the upper surface of TG-2 shaft ⓫.
3) Rotate TG-2 nut ❿ two times in the direction of arrow as shown in Fig. B. At this point, be sure to confirm that the TG-2 nut becomes 0.4mm higher than the TG-2 shaft.

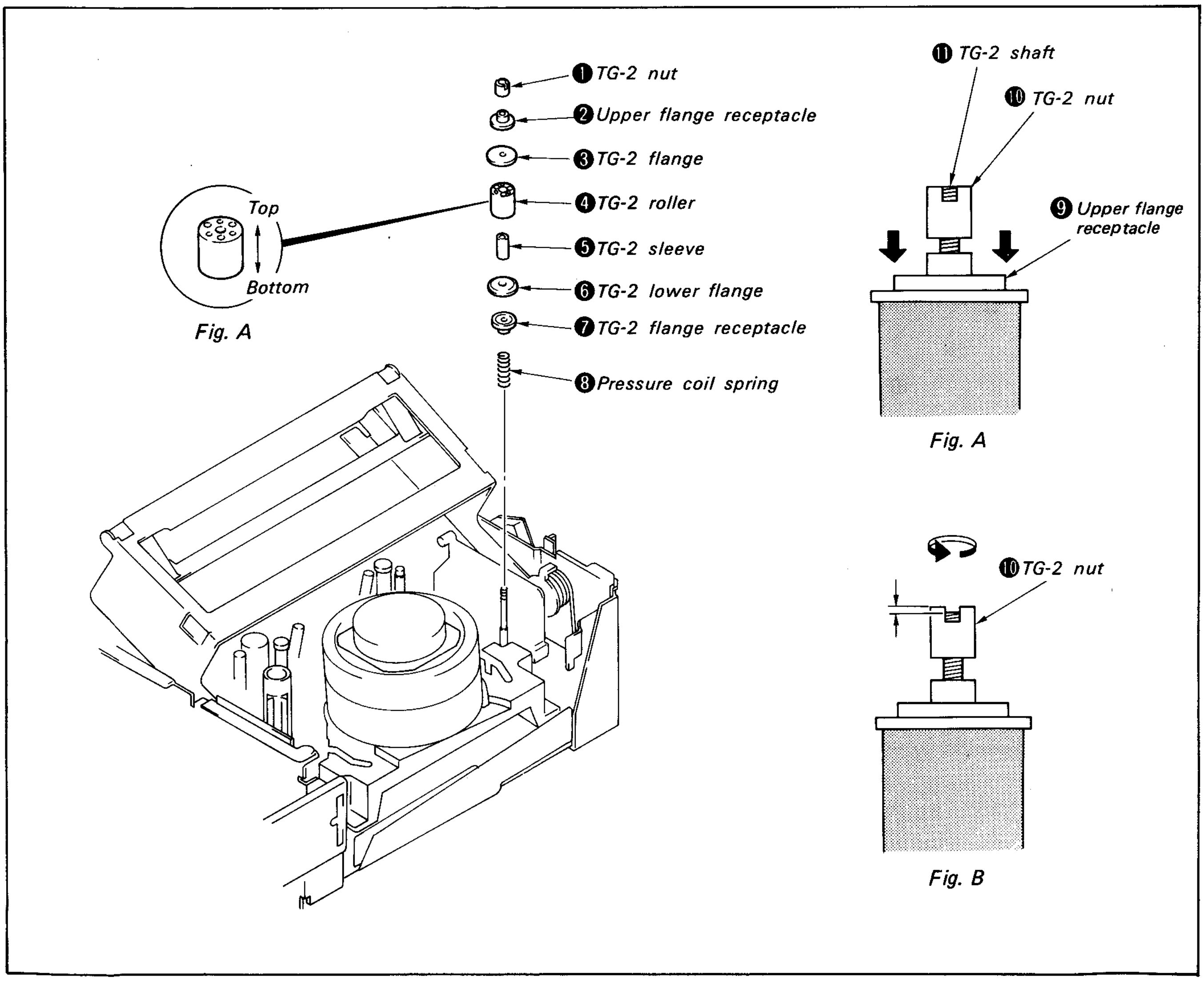

Top
Bottom
Fig. A
❶ TG-2 nut
❷ Upper flange receptacle
❸ TG-2 flange
❹ TG-2 roller
❺ TG-2 sleeve
❻ TG-2 lower flange
❼ TG-2 flange receptacle
❽ Pressure coil spring
⓫ TG-2 shaft
❿ TG-2 nut
❾ Upper flange receptacle
Fig. A
❿ TG-2 nut
Fig. B

Fig. 2-37

2-3-25. Drum Assembly

1. Removal

1) Turn into EJECT mode.
2) By referring to 2-3-22, open MD-10 board and remove 4 connectors ❶.
3) Remove 2 screws ❷ and a screw ❸, and remove drum base ❹ and dew condensation sensor ❺.
4) Remove 3 screws ❻ and 3 washers ❼, and remove drum assembly ❽. (See Fig. 2-38)

2. Installation

1) Install drum assembly ❽ to drum base ❹ and set 3 screws ❻ and 3 washers ❼.
2) Mount drum base ❹ on the mechanical chassis and secure it with 2 screws ❷.
3) Tighten dew condensation sensor ❺ and drum base ❹ together with screw ❸.
4) Apply molten grease to the arrow marked point, as shown in Fig. A.
5) Install 4 connectors ❶ to MD-10 board.
6) By referring to 2-3-22, install MD-10 board.
7) Perform tape path adjustment in item 2-4.

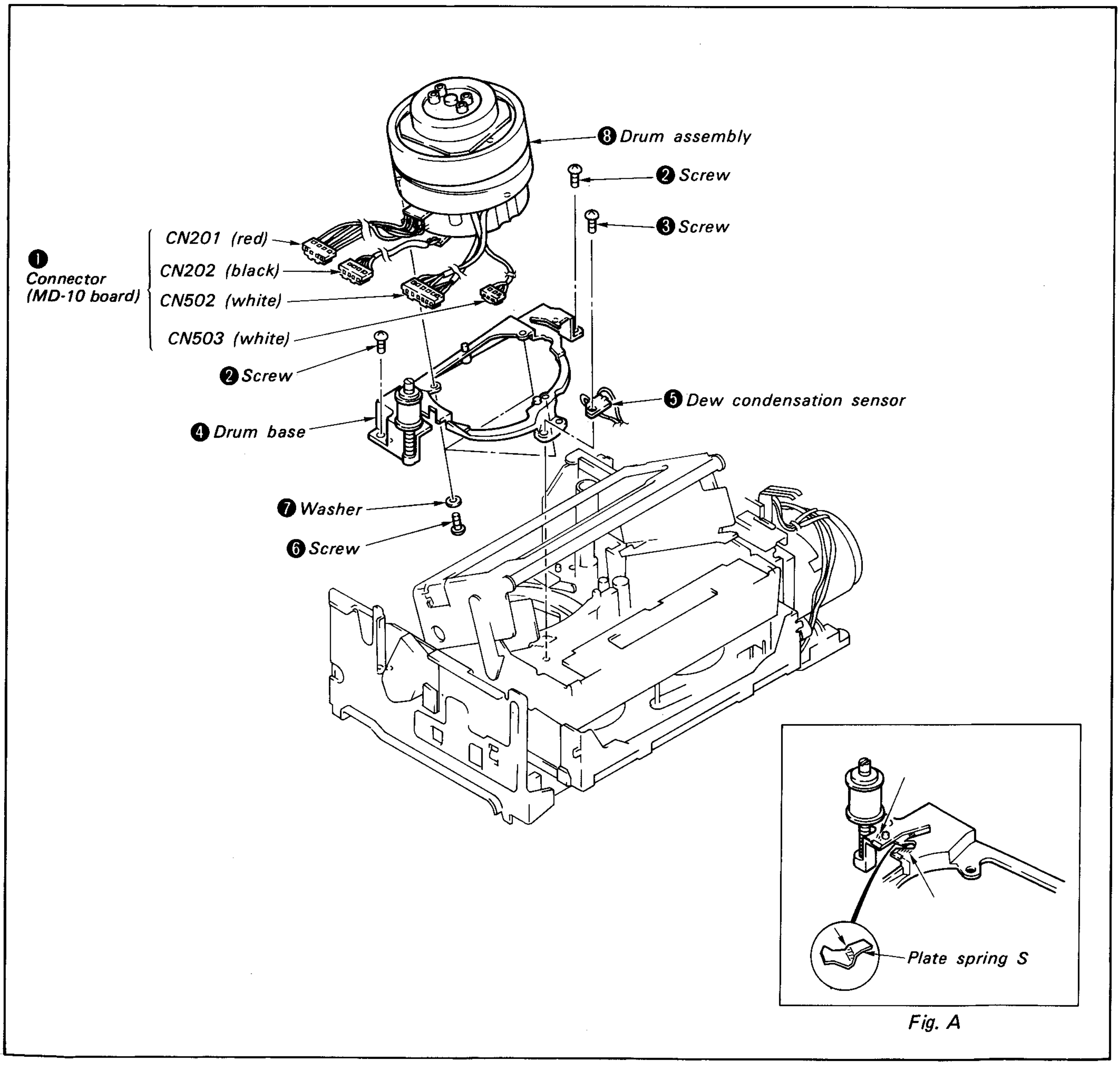

❽ Drum assembly
❷ Screw
❸ Screw
❶ Connector (MD-10 board)
CN201 (red)
CN202 (black)
CN502 (white)
CN503 (white)
❷ Screw
❺ Dew condensation sensor
❹ Drum base
❼ Washer
❻ Screw
Plate spring S
Fig. A

Fig. 2-38

2-3-26. Replacement of Rotary Upper Drum

1. Removal

- Replacement of the rotary upper drum is carried out in accordance with the color mark shown in Fig. A.
- If video recording is possible, make video recording prior to the removal.

Combination of color marks when performing replacement

New rotary upper drum		Removed rotary upper drum
Part No.	Color mark	Color mark
A-7049-040-A	Blue or red	Blue or red
A-7049-041-A	Black or green	Black or green

1) Remove 2 hexagonal socket head cap screws ❶ and damper ❷.
2) Remove all the six points of soldering in ⓐ section, and confirm that the board and pins which are projected from the lower side of the board can be moved freely by touching with tweezers, etc.
3) Remove 2 hexagonal socket head cap screws ❶. (See Fig. 2-39)
4) Set jig 6 (Ref.No.J-10) into the screw hole, where damper ❷ had been installed, with attached 2 screws ❹ and set the attached hexagonal socket head cap screw ❺ to jig ❻. Then, remove rotary upper drum ❼ by using the jig. (See Fig. 2-40)

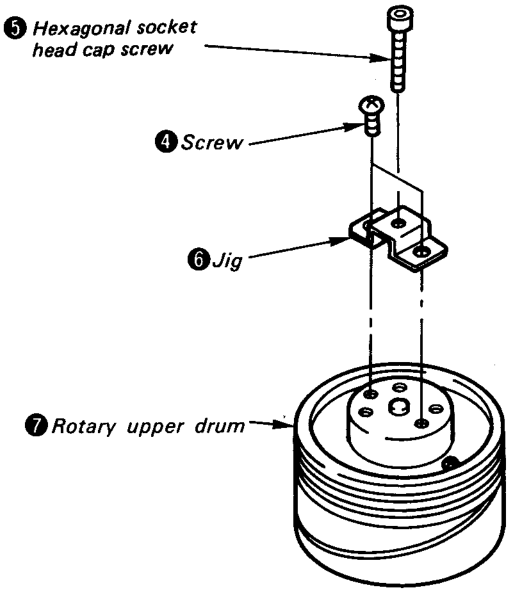

❺ Hexagonal socket head cap screw
❹ Screw
❻ Jig
❼ Rotary upper drum

Fig. 2-40

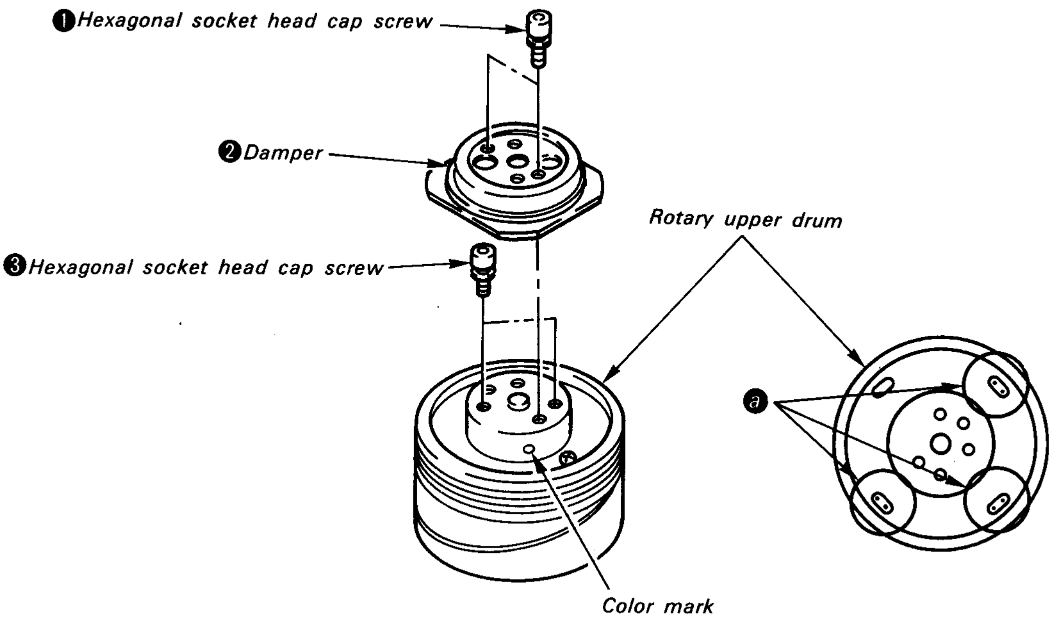

❶ Hexagonal socket head cap screw
❷ Damper
❸ Hexagonal socket head cap screw
Rotary upper drum
ⓐ
Color mark

Fig. 2-39

2. Installation

1) Perform cleaning of flange surface and rotary upper drum surface which are contacted to it, and confirm that there are no dust and flaws.
2) Insert the rotary upper drum slightly into the shaft while adjusting by using jig ❾ (Ref.No.J-10) so that the position of rotary upper drum ❼ and position determining hole ❽ coincide. (See Fig.2-41) At this point, be sure to confirm that pin ❿ is protruded from the hole of the rotary board.
3) Remove jig ❾ from upper rotary drum and push it gently into lower one manualy. (See Fig. 2-42) However, when it cannot be inserted thoroughly, tighten 2 hexagonal socket head cap screws ❸ alternately to secure it temporarily.
4) Insert jig ❾ again into position determining hole ❽, and be sure to confirm that it can be inserted smoothly. When it cannot be inserted, loosen 2 hexagonal socket head cap screws ❸, and insert a wrist watch driver, etc. into it to shift it.
5) Tighten 2 hexagonal socket head cap screws ❸.
6) Solder pin ❿ of a section.

   Note:

   At this point, be sure not to let the soldering flow underneath the board.
7) Install damper ❷ with 2 hexagonal socket head cap screws ❶.

   Notes:

   1) Be sure not to tighten too strongly.

   2) When performing installation, special care should be taken so as not to mistake the hexagonal socket head cap screws ❸ (2 x 5) with that of ❶ (2 x 2.7).

   3) Be sure to perform tape path adjustment after installation.

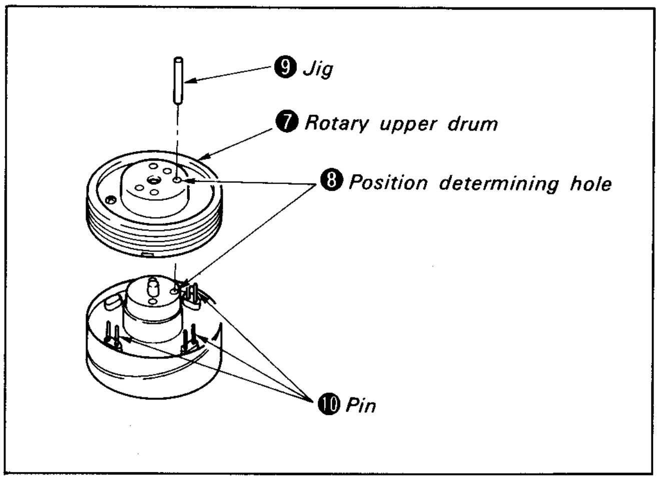


Fig. 2-41

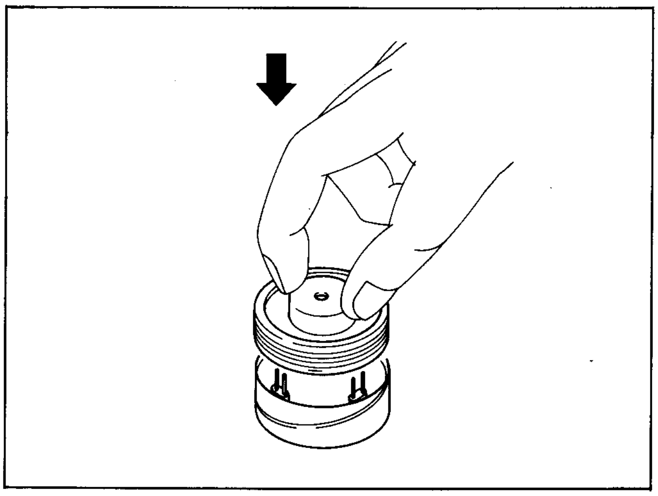


Fig. 2-42

2-3-27. Reel Table Height Check

1. Removal

1) By referring to 2-1-1, remove cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-1, remove reel lock lever.
3) By referring to 2-3-2, remove pendulum stopper plate.

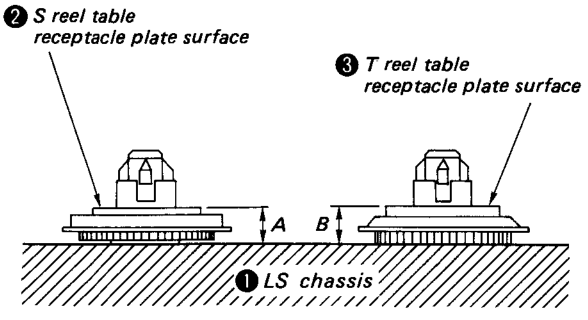
2. Checking

1) Confirm by using calipers, etc., so that the heights from LS chassis ❶ to S reel table reel receptacle plate surface ❷ and from LS chassis to T reel table reel receptacle plate surface ❸ should respectively be 6.85±0.15 mm.

Note:
However, in the case a washer (t = 0.13) is inserted under the T reel table, it becomes 6.98±0.15 mm. (See Fig. 2-43)

3. Installation

1) By referring to 2-3-2, install pendulum stopper plate.
2) By referring to 2-3-1, install reel lock lever assembly.
3) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.


❷ S reel table receptacle plate surface
❸ T reel table receptacle plate surface
A
B
❶ LS chassis

(When a washer is inserted, A = B = 6.85±0.15 mm)

Fig. 2-43

2-3-28. Pinch Stroke Adjustment

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.
2) By referring to 2-3-1, remove reel lock lever assembly.
3) By referring to 2-3-2, remove pendulum stopper plate. (See Fig. 2-44)

2. Adjustment

1) Turn into $\boxed{\text{REC}}$ mode.
2) Loosen 2 screws of pinch arm B assembly ❶, and move it in the direction of arrow by inserting a flat-blade screwdriver, etc. into notching ❷.
3) Adjust so that the clearance of Ⓐ section becomes 0.3 mm to 0.5 mm and tighten 2 screws of pinch arm B assembly ❶.
4) Turn into $\boxed{\text{READY}}$ mode.
5) Be sure that there is a clearance between pinch roller 3 and capstan shaft ❹ when it is turned into $\boxed{\text{READY}}$ mode.

3. Installation

1) By referring to 2-3-2, install pendulum stopper plate.
2) By referring to 2-3-1, install reel lock lever assembly.
3) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

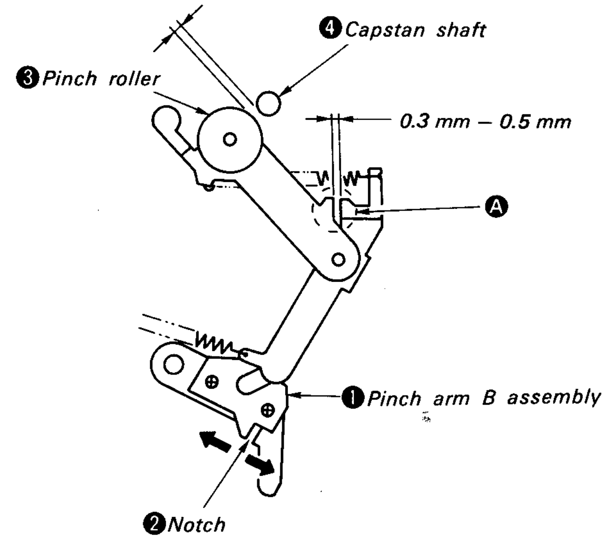


Fig. 2-44

2-3-29. Soft Brake Torque Check

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.

2. Checking

1) Turn into USE (STOP) mode.
2) Mount the tension measuring exclusive reel (Ref.No.J-8) on the S reel table.
3) Pull the dial tension gauge (Ref.No.J-6) in the direction of arrow and confirm that the gauge indicates the specified value.

3. Installation

1) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

2-3-30. FWD/RVS Torque Check

1) Set the FWD and RVS take up torque cassette (Ref.No. J-9).
2) Turn into REC mode, and confirm torque value at the T reel side becomes 12 gcm to 20 gcm.
3) Ground pin 5 (base of Q216) of IC101 on MD-10 board. (In this state, it becomes into RVS mode when the REC SW is turned ON.)
4) In the state mentioned in 3), confirm that the torque at S reel becomes 9 gcm to 21 gcm by turning into REC mode.
5) In the event the above-mentioned value are not indicated, be sure to replace the individual reel tables.

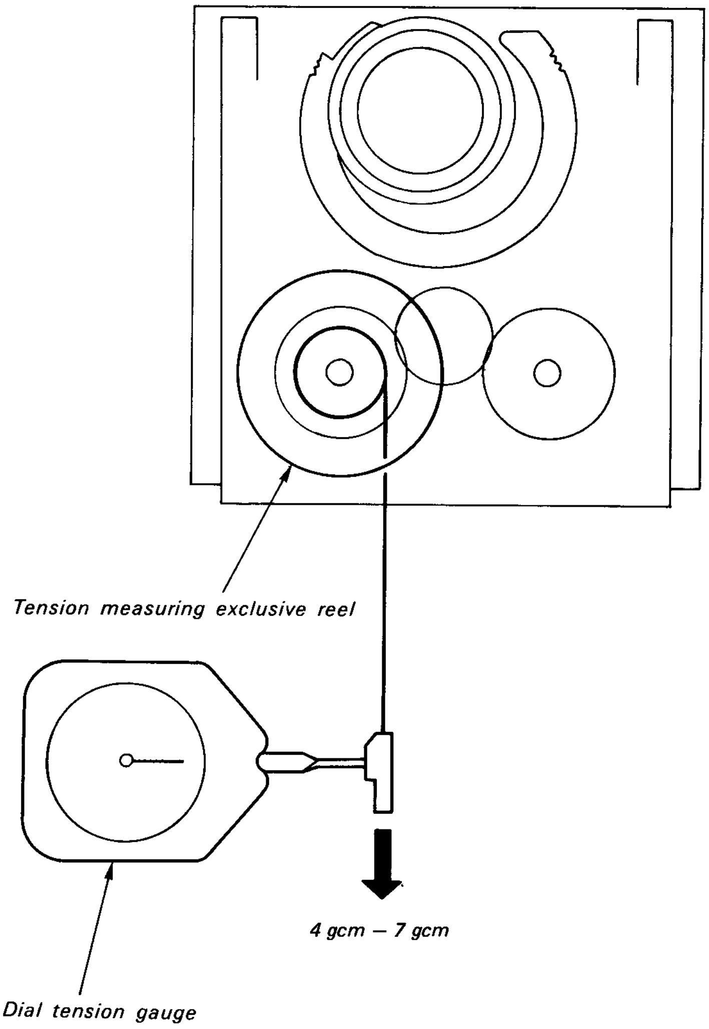


Fig. 2-45

2-3-31. Tension Regulator Position Adjustment

1. Removal

1) By referring to 2-1-1 and 2-1-2, remove cassette arm assembly and LS cassette compartment assembly.

2. Adjustment

1) Turn into REC mode and set a cassette tape and run the tape. (See Fig. 2-1-4)
2) In tape running state, confirm whether the arrow marked Ⓐ point is positioned at the point (arrow mark Ⓑ) 1/3 within the thickness of LS guide ❷ or not. (See Fig. 2-46)
3) When it is not at the specified position, remove the cassette and perform the adjustments described in after step 4).
4) Loosen screw ❸.
5) If TG-1 arm assembly ❶ is within the inner side than the specified position, shift the tension regulating band plate ❹ slightly in the direction of arrow Ⓒ. If it is in the outer side, shift it slightly in the direction of arrow Ⓓ and secure it with screw ❸. (See Fig. 2-47)

Notes:

1) **Use a cassette tape which has been forwarded to about the middle section.**
2) **When performing step 2), the cassette tape should be removed in advance.**

3. Installation

By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

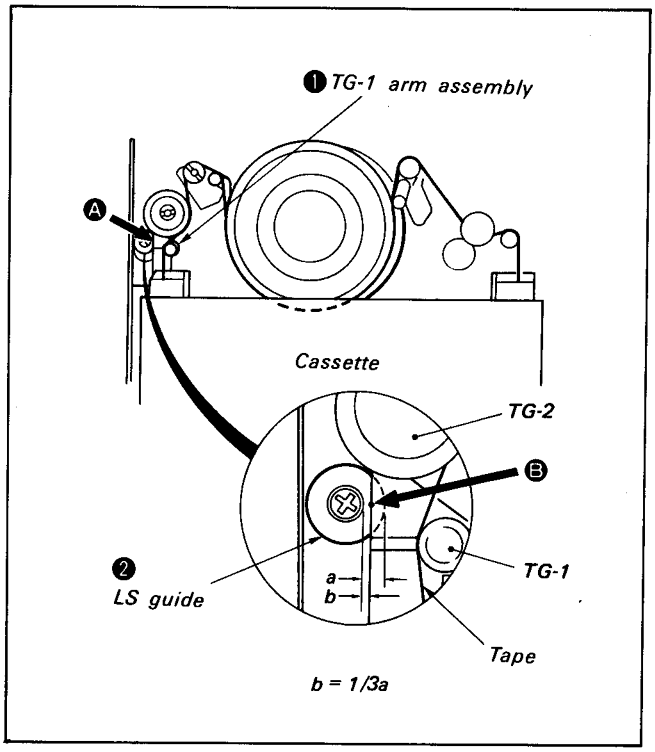


Fig. 2-46

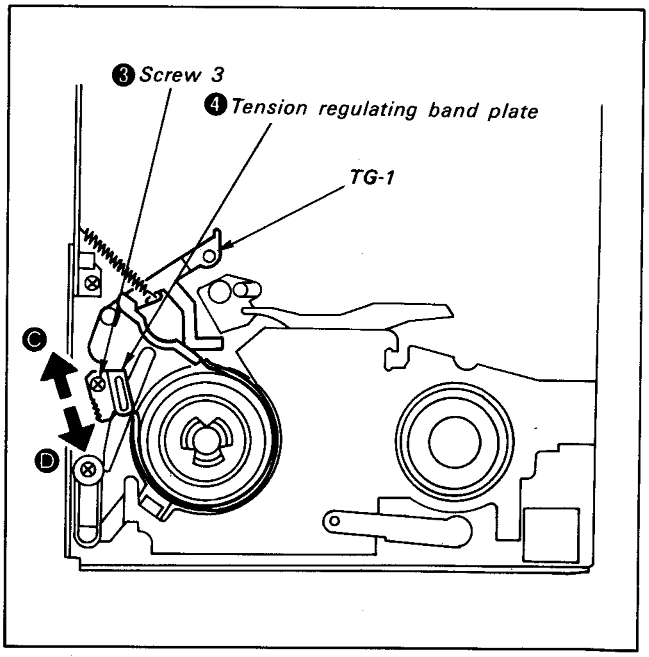


Fig. 2-47

2-3-32. FWD Back Tension Adjustment

1. **Removal**

   By referring to 2-1-1 and 2-1-2, remove cassette arm asssembly.

2. **Adjustment**

1) Turn into REC mode.
2) Set the tension measuring exclusive reel (Ref.No.J-7).
3) Measure tape tension of the outgoing side by using dial tension gauge (Ref.No.J-6). At this point, the measurement should be conducted by pulling the tape at the speed of 14 mm/sec. (See Fig. 2-48)
4) Move spring hooking position ❹ of tension regulating spring ❸ so that the tension applied becomes within the range of 7.9 to 8.9g. (See Fig. 2-49)

3. **Installation**

1) By referring to 2-1-1 and 2-1-2, install cassette arm assembly and LS cassette compartment assembly.

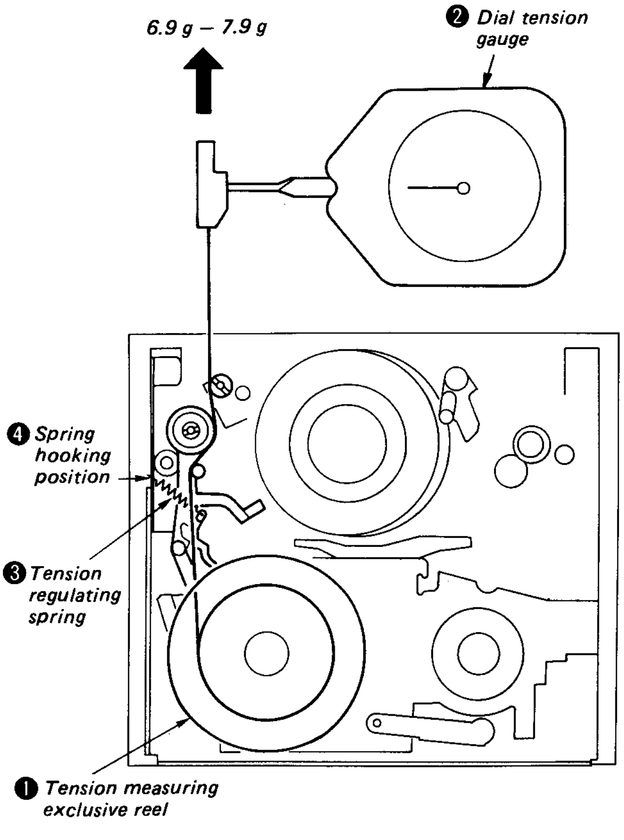
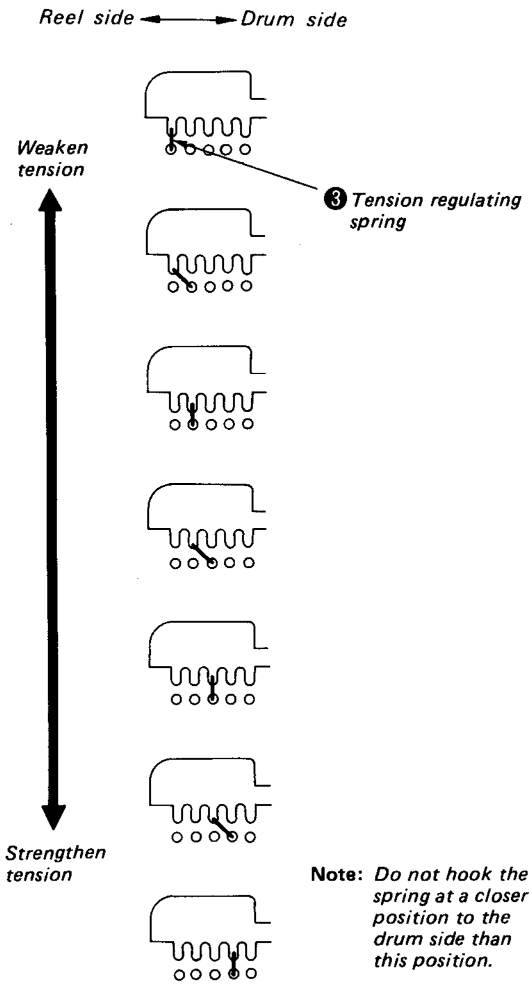

6.9 g – 7.9 g
❷ Dial tension gauge
❹ Spring hooking position
❸ Tension regulating spring
❶ Tension measuring exclusive reel

Fig. 2-48


Reel side ← → Drum side
Weaken tension
Strengthen tension
❸ Tension regulating spring

Note: *Do not hook the spring at a closer position to the drum side than this position.*

Fig. 2-49

2-4. TAPE PATH ADJUSTMENT

- Perform this adjustment after comfirming that the electrical adjustment has been completed.

2-4-1. Preparations for Adjustment

1) Perform cleaning of the tape running surface (tape guide, drums, capstan shafts and pinch rollers).
2) Camera section adjustment
   Connect track shift and monitor jig and set the jig switch as shown below, by refering to Connection Diagram 1), 1-3, Track Shift and Monitor Jig.
   SEL switch: ON
   PATTERN switch: V8
   VTR/CMR switch: CMR
   2.4 K/Hi switch: Hi
   AFT ADJ switch: OFF
3) Oscilloscope connection
   1 CH: M8 PB Y terminal of track shift and monitor jig (RF output).
   2 CH: RF SW P terminal of track shift and monitor jig (Exterior trigger).
4) Play back the alignmnet tape for tracking (WR5-1N) in accordance with the following (See Fig. 2-50).
   Note:
   Erroneous erase preventive claw of the tape should be in the recordable position.
   i) Short-circuit LENS DOOR SW (S901) using a clip.
   ii) Short-circuit MD-10 board check land E to GND.
   iii) Instantaneously short-circuit MD-10 board REC SW contact spring to GND.
   Note:
   Tape is running but becomes standby mode, with the standby LED lit.
   iv) Short-circuit again REC SW contact spring to GND instantaneously so that the playback mode is attained.
   Notes:
   1) Standby LED goes off and playback mode is restored.
   2) • Each short-circuit between REC SW contact spring and GND alternately set the playback mode and standby mode. In order to stop it, open LENS DOOR SW (S901).
   • Signals which are output from VIDEO OUT of track shift and monitor jig are image signals from the camera and the playback signals from the tape are not output.
5) Maximize the RF waveform amplitude by turning the track shift knob of the track shift and monitor jig (See Fig. 2-51).

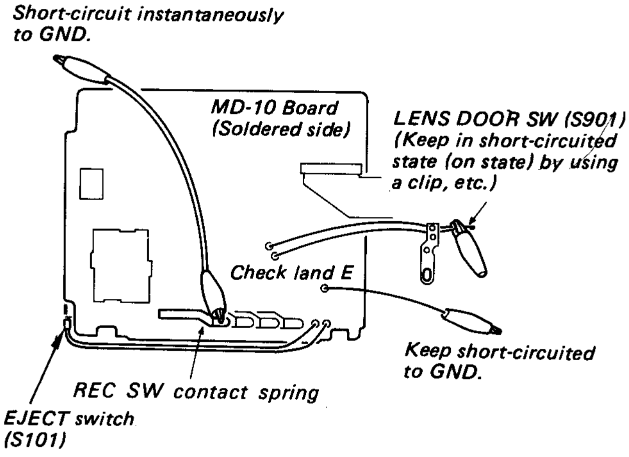

Short-circuit instantaneously to GND.
MD-10 Board (Soldered side)
LENS DOOR SW (S901) (Keep in short-circuited state (on state) by using a clip, etc.)
Check land E
Keep short-circuited to GND.
REC SW contact spring
EJECT switch (S101)

Fig. 2-50

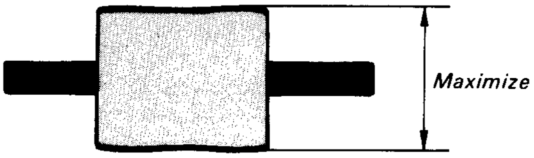


Fig. 2-51

6) Confirm that the oscilloscope RF waveforms are flat both on the inlet side and on the outlet side (See Fig. 2-52 a). If they are not flat, perform the adjustment in accordance with the following :
   - If RF waveform is not flat on the inlet side (See Fig. 2-52 b).
     After a rough adjustment in accordance with 2-4-2 Tracking Adjustment, perform adjustment in accordance with 2-4-3 Adjustment on the Inlet Side.
   - If RF waveform is not flat on the outlet side (See Fig. 2-5 c).
     After a rough adjustment in accordance with 2-4-2 Tracking Adjustemnt, perform adjustment in accordance with 2-4-4 Adjustment on the Outlet Side.

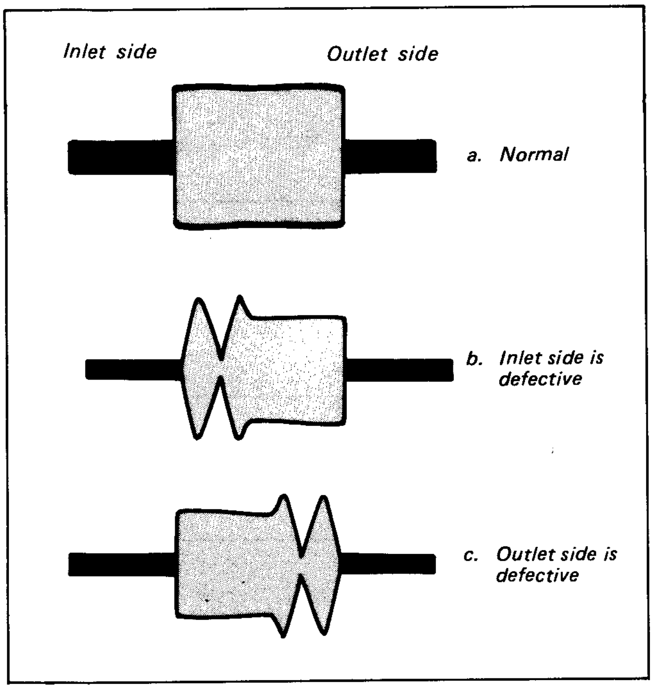

Inlet side
Outlet side
a. Normal
b. Inlet side is defective
c. Outlet side is defective

Fig. 2-52

7) If RF waveform is normal, check after the adjustment has been performed in accordance with 2-4-5 Check after Adjustment.

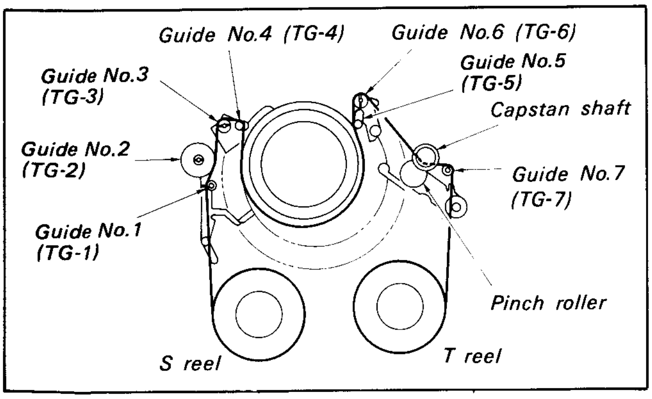

Guide No.4 (TG-4)
Guide No.6 (TG-6)
Guide No.3 (TG-3)
Guide No.5 (TG-5)
Capstan shaft
Guide No.2 (TG-2)
Guide No.7 (TG-7)
Guide No.1 (TG-1)
Pinch roller
S reel
T reel

Fig. 2-53 Tape guide arrangement diagram

2-4-2. Rough Adjustment of Tracking

1) Play back the tracking alignment tape.
2) Maximize the RF waveform amplitude by turning the track shift knob of track shift and monitor jig (See Fig. 2-51).
3) Loosen lock screw ❶ of guide No. 3 (TG-3) and turn guide No.3 so that the waveform on the inlet side becomes flat (See Fig. 2-54).
4) If the waveform fails to become flat after the adjustment 2), turn guide No.2 (TG-2) approx. 180° counterclockwise and operate guide No.3 so that the waveform becomes flat.
5) Loosen lock screw ❷ of guide No.6 (TG-6) and turn Guide No.6 so that the waveform on the outlet side becomes flat (See Fig. 2-55).
6) In case of performing an adjustment on the inlet side after the above-mentioned adjustment, tihgten lock screw of guide No.6. In case of performing an adjustment on the outlet side after the above-mentioned adjustment, tighten the lock screw of guide No.3. Confirm that waveforms do not have variations on the outlet side when the lock screw of guide No.6 is tightened and on the inlet side when the lock screw of guide No.3 is tightened.

Note:

When tightening the lock screw of guide No.6 the lock screw should be turned with the base lightly depressed downward so that the top of the guide No.5 (TG-5) does not come into contact with the drum.

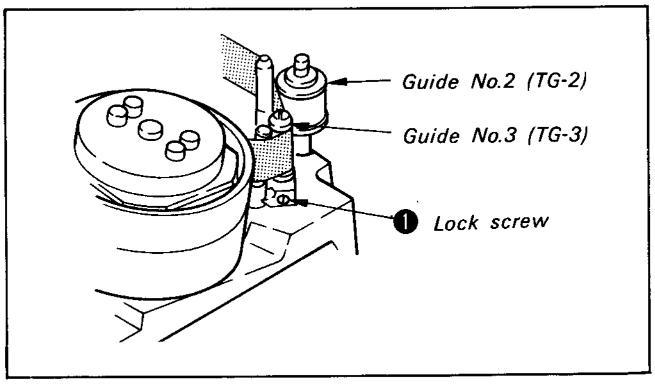

Guide No.2 (TG-2)
Guide No.3 (TG-3)
❶ Lock screw

Fig. 2-54

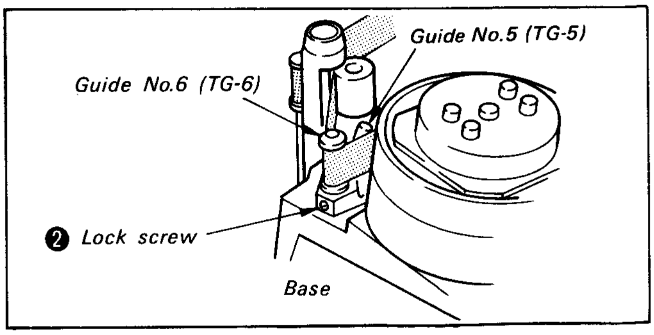

Guide No.5 (TG-5)
Guide No.6 (TG-6)
❷ Lock screw
Base

Fig. 2-55

2-4-3. Adjustment on the Inlet Side

1) Play back the tracking alignment tape. Bring the RF waveform amplitude to 2/3 of the maximum level by turning the track shift knob of the track shift and monitor jig (See Fig. 2-56).
2) Turn guide No.3 (TG-3) counterclockwise until the waveform on the inlet side becomes one or 1−1.5 ridges (See Fig. 2-57).
3) Confirm that the waveform on the inlet side is free from variations for five seconds, the tape is controlled by the upper flange of guide No.3, while the lower flange lifts up, and the tape is controlled by the lower flange of guide No.2 (See Fig. 2-58).
   If the above-mentioned conditions are not satisfied, turn guide No.2 (TG-2) counterclockwise so that the waveform on the inlet side becomes 2±0.5 ridges (See Fig. 2-59).
   Confirm that the tape is free-running (without the upper and lower flanges coming into contact with the tape) at guide No.3.
4) Turn guide No.3 clockwise so that the waveform on the inlet side becomes that.
5) Tighten the lock screw of guide No.3 and lock guide No.3. Confirm that the waveform on the inlet side has no variations.

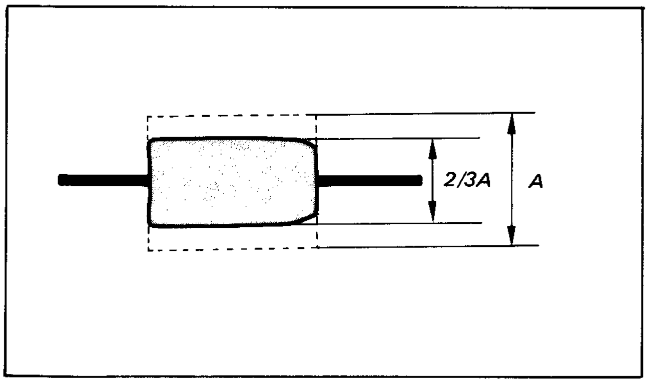


Fig. 2-56

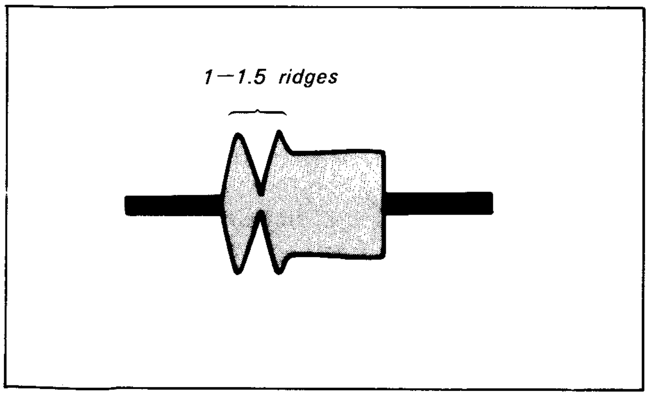


Fig. 2-57

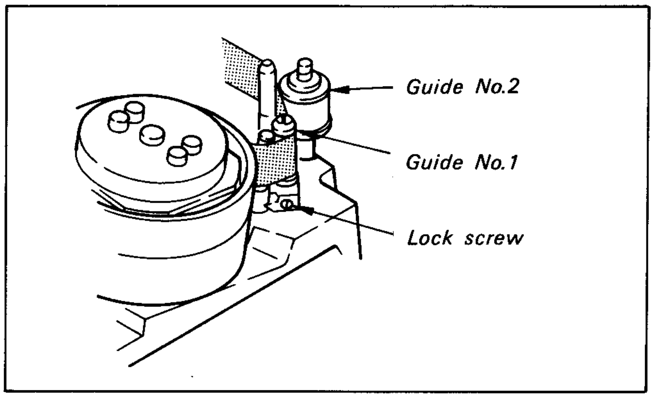


Fig. 2-58

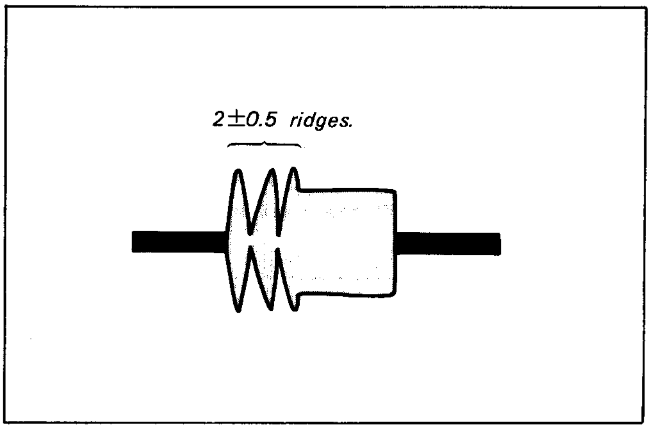


Fig. 2-59

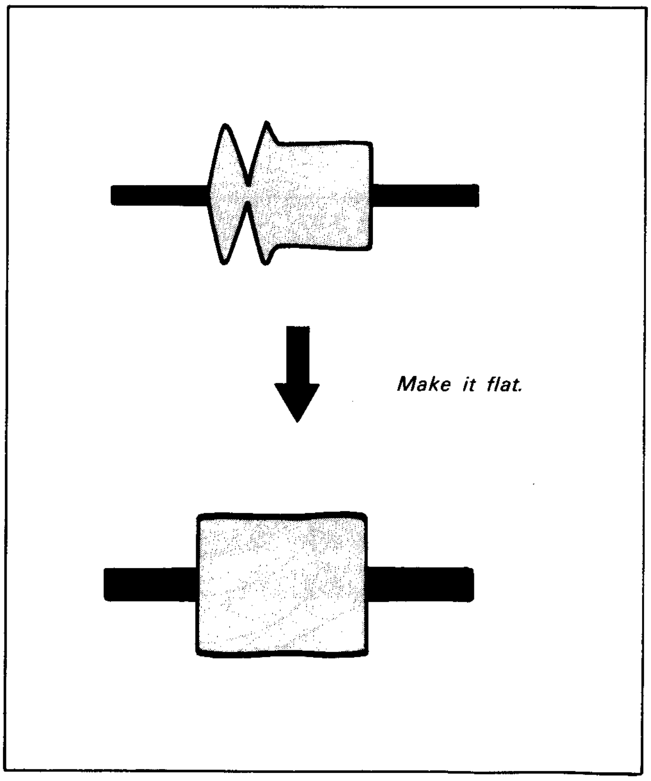


Fig. 2-60

2-4-4. Adjustment on the Outlet Side

1) Play back the tracking alignment tape. Bring the RF waveform amplitude to 2/3 of the maximum level by turning the track shift knob of the track shift and monitor jig (See Fig. 2-56).
2) Turn guide No.6 (TG-6) counterclockwise until the waveform on the outlet side becomes one or 1–1.5 ridges (See Fig. 2-61).
3) Confirm that the waveform on the inlet side is free from variations for five seconds and that the tape is controlled by the upper flange of guide No.3 while the lower flange lifts up (See Fig. 2-62).
4) Turn guide No.6 clockwise so that the waveform on the outlet side becomes flat (See Fig. 2-63).
5) Tighten the lock screw of guide No.6 and lock guide No.6. Confirm that the waveform on the outlet side has no variations.

   Note:

   When tightening the lock screw of guide No.6, turn the lock screw with the base lightly depressed downward so that the top of guide No.5 (TG-5) does not come into contact with the drum (See Fig. 2-62).

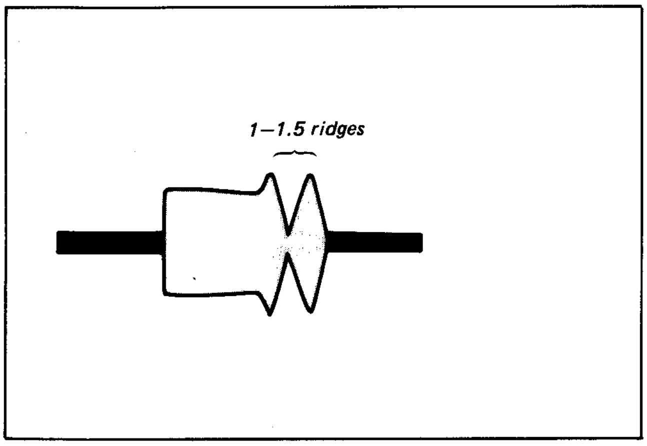


Fig. 2-61

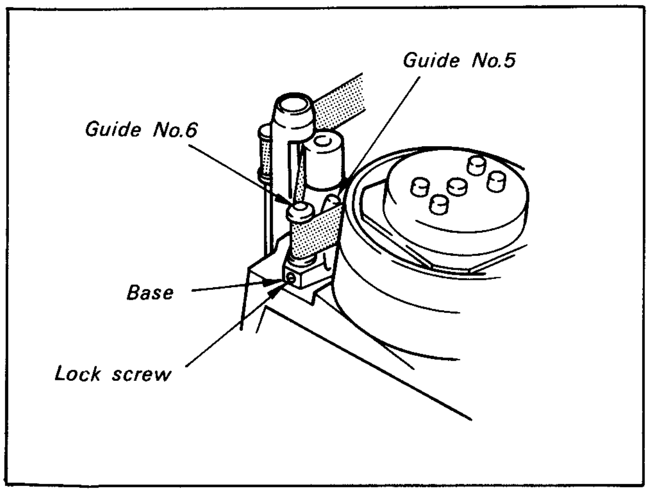


Fig. 2-62

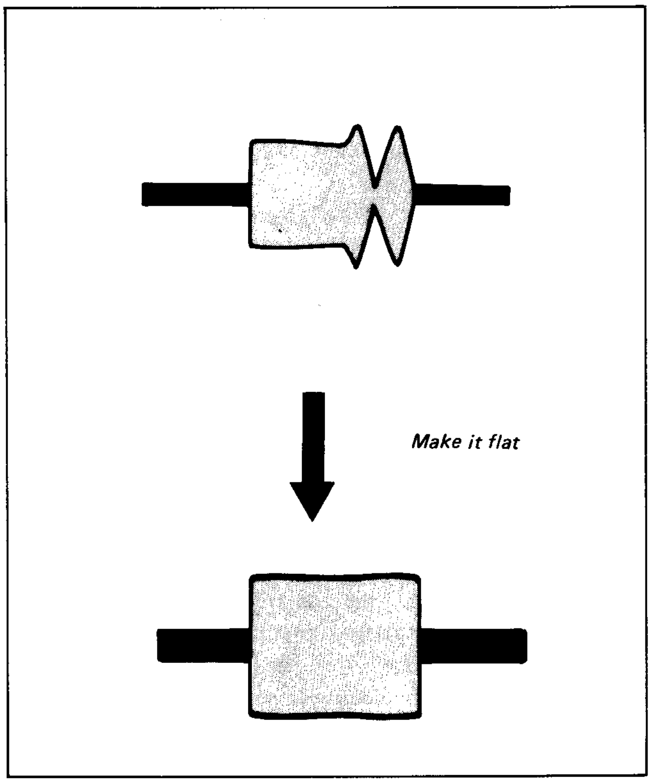


Fig. 2-63

2-4-5. Check after Adjustment

1. Tracking check

1) Play back the tracking alignment tape and turn the track shift knob of the track shift and monitor jig so that the RF waveform amplitude is maximized (See Fig. 2-64).
2) Confirm that the minimum value of the amplitude (EMIN) exceeds 75% of the maximum value (EMAX) (See Fig. 2-65).
3) Confirm that the waveform has no variations (See Fig. 2-66).

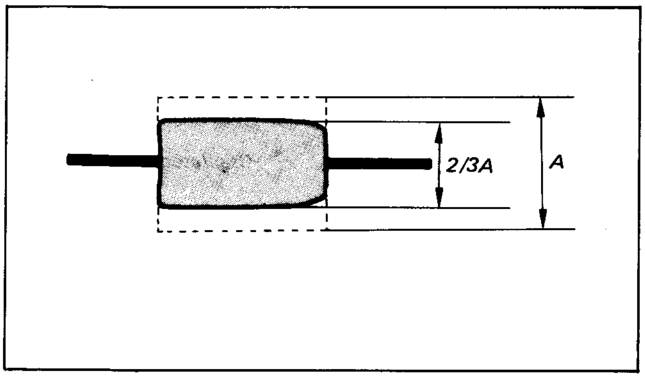


Fig. 2-64

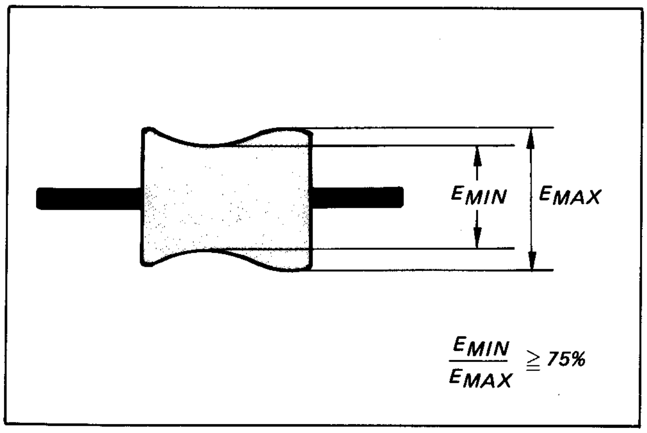

EMIN
EMAX
EMIN / EMAX ≧ 75%

Fig. 2-65

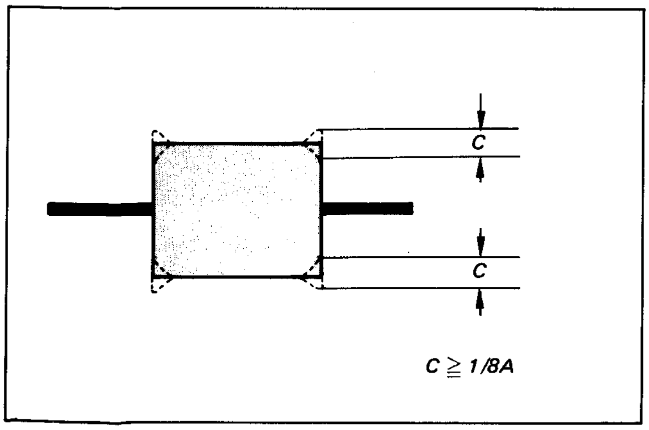


Fig. 2-66

2. Checking rising edge

1) Play back the tracking alignment tape.
2) Turn the track shift knob of the track shift and monitor jig so that the RF waveform amplitude is maximized.
3) Instantaneously short-circuit the MD-10 board REC SW contact spring to GND, and light the standby LED so that the standby mode is attained (See Fig. 2-50).
4) Turn EJECT switch on to eject so that threading is repeated again.
5) Set to playback mode and confirm that the RF waveform rises horizontally. Confirm that there are no wrinkles in the tape in the vicinity of the pin roller (See Fig. 2-67).
6) Light the standby LED so that the standby mode is attained, and repeatedly confirm 1).

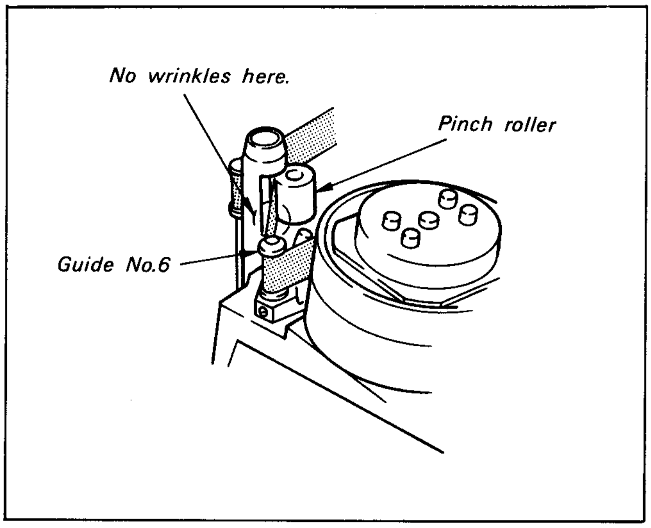

No wrinkles here.
Pinch roller
Guide No.6

Fig. 2-67

3. Tape running check

Set to playback mode and confirm that the tape is neither lifted up nor curled severely at the lower flange of guide No.2, upper flange of guide No.3 and upper flange of guide No.6, and not curled at the upper and lower flanges of guide No.7 (See Fig. 2-68).

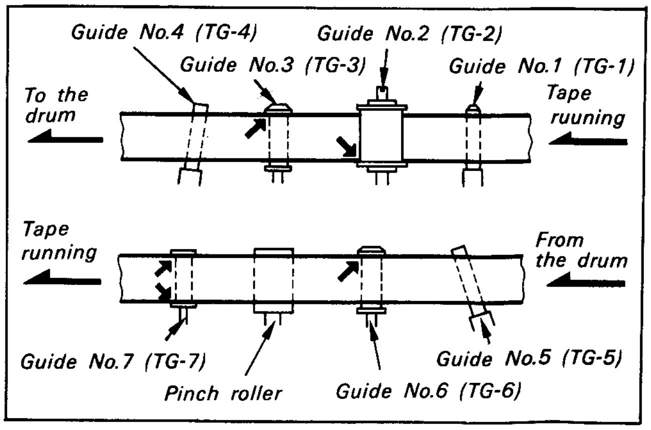

Guide No.4 (TG-4)
Guide No.2 (TG-2)
Guide No.3 (TG-3)
Guide No.1 (TG-1)
To the drum
Tape ruuning
Tape running
From the drum
Guide No.7 (TG-7)
Pinch roller
Guide No.6 (TG-6)
Guide No.5 (TG-5)

Fig. 2-68

3. VIDEO ADJUSTMENTS

The measuring instruments listed below are used for adjustment of the video section.

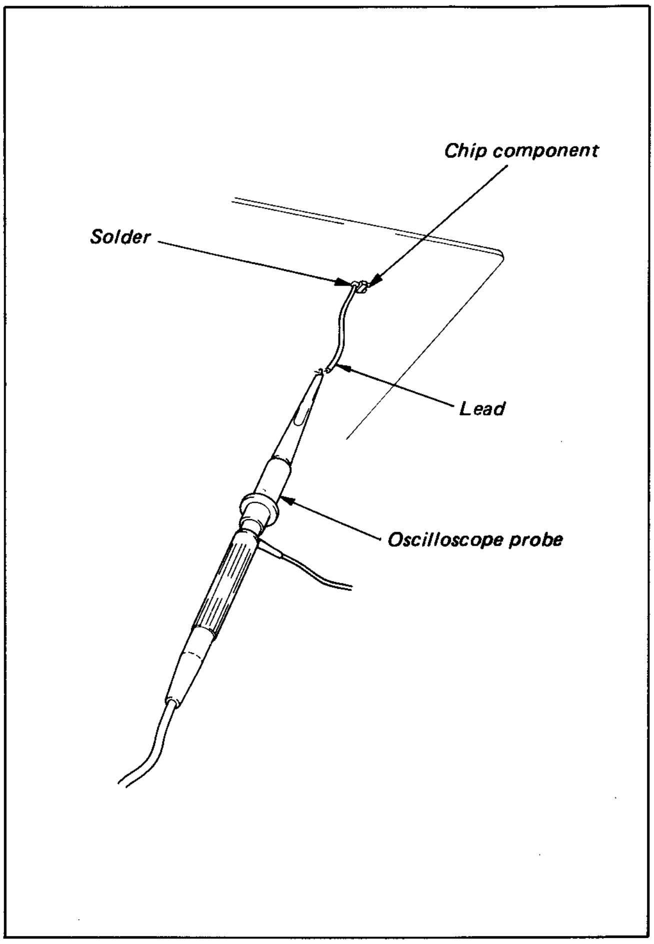
Equipment Required:

1) Monitor TV
2) AC adapter (Modification is needed for AC-V8UC; the procedure is found under Camera Adjustment 1-3, 3) AC-V8UC Modification Procedure.)
3) Dual-trace oscilloscope, band range over 10 MHz, with delay mode (Unless otherwise indicated, use a 10 : 1 probe.)
4) Frequency counter
5) Track shift & monitor jig
   Part No.: J-6080-843-A
6) Digital voltmeter
7) Audio generator
8) Audio level meter
9) Audio distortion meter
10) Audio attenuator
11) Stable DC power supply
12) Alignment tape
    For tracking adjustment: WR5-1N
    Part No.: 8-967-995-01
    For video frequency response adjustment: WR5-2N
    Part No.: 8-967-995-11
    For operation check: WR5-3NS
    Part No.: 8-967-995-21
13) Tape end detection filter
    Part No.: J-6080-848-A
14) Playback equipment (EV-A300, EV-S700, etc.)

Equipment Connection:

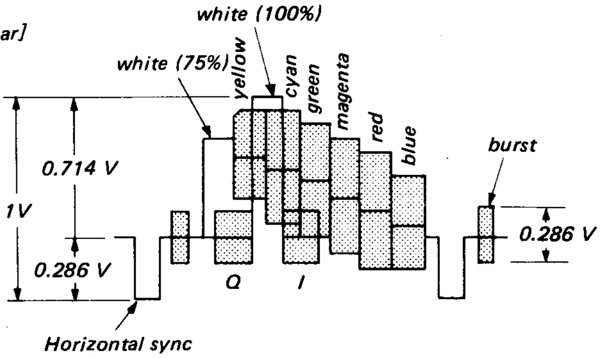
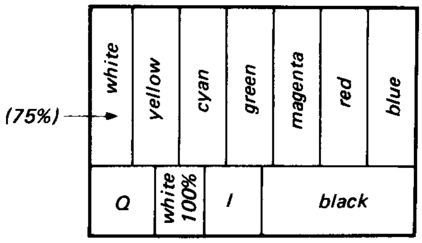
Refer to the section on Camera Adjustment "1-3. Track shift & monitor jig connection procedure" for the connection and recording procedures for the track shift & monitor jig. Also, refer to "2-4. Tape Path Adjustment", "2-4-1. Preparations for Adjustment" for playback procedure.
Refer to the Service Manual for the playback equipment for the connection when using playback equipment to measure.

Measurement Procedure:
When using the oscilloscope probe to measure chip components, solder a lead to the location to be measured and connect the probe to the lead.



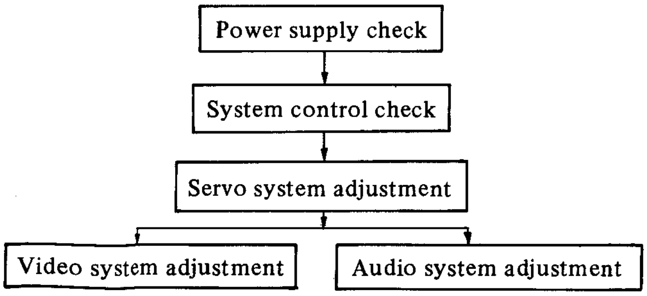
Measurement procedure

Alignment Tape

Name	Contents	Use
Tracking (WR5-1N)	1. Recorded area PCM ~ video 2. Recorded contents CH2: 1 MHz linear adjustment signal (CH1: 7 MHz)	Drum linearity adjustment
Video frequency response (WR5-2N)	1. Recorded area Video 2. Recorded contents RF sweep 0 ~ 10 MHz 3. Marker 1, 3.58, 5.5, 7 MHz 4. Recording level $\frac{5.5\text{ MHz level}}{3.58\text{ MHz level}} = -5\text{ dB}$	Frequency response adjustment
Operation check (WR5-3NS)	1. Recorded area Video 2. Recorded contents ● Video signal color-bar 10 seconds, monoscope 8 seconds } repeated *[Color-bar]*  *color bar signal waveform*  (75%) white yellow cyan green magenta red blue Q white 100% I black *color bar pattern* ● Audio signal 400 Hz 60% modulation	Operation check

Adjustment Order

Perform adjustment in the following order.


Power supply check
System control check
Servo system adjustment
Video system adjustment
Audio system adjustment

3-1. EVER 5 V ADJUSTMENT (MD-10 BOARD)

Mode: STOP
Digital voltmeter: Q101 collector
Adjustment Procedure:

1) Supply 7.0 ±0.5 V from the stable DC power supply to the power supply contact point spring. (See Fig. 3-1)
2) Adjust RV101 for a reading of 5.00 ±0.05 V.

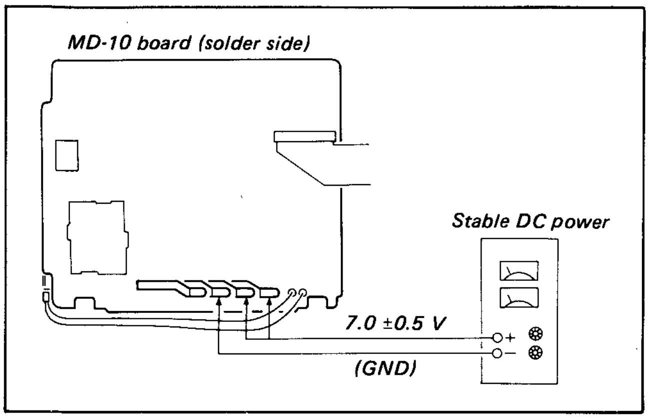

MD-10 board (solder side)
Stable DC power
7.0 ±0.5 V
(GND)
+
−

Fig. 3-1 EVER 5 V adjustment

3-2. SYSTEM CONTROL ADJUSTMENT

3-2-1. Battery Down Adjustment (MD-10 Board)

Mode: STOP
Digital voltmeter: Q124 emitter
Adjustment Procedure:

1) Supply 5.78 ±0.01 V from the stable DC power supply to the power supply contact point spring.
2) Short IC101 pin ⑥ to GND.
3) Turn RV102 counterclockwise and stop at the point where Q124 emitter goes from high to low.

Note:
Q124 changes even if RV102 is turned clockwise, but this is different from the adjustment point, so be sure to turn it counterclockwise.

3-2-2. Tape End Detection Adjustment

Oscilloscope: CH1: Q118 base (AC range)
CH2: Q119 collector (DC range)
Adjustment Procedure:

1) Fix the erase prevention switch so that it is pushed in with a tape, etc. (See Fig. 3-2)
2) Without inserting a cassette, lower the cassette compartment and load.
3) Place the tape end detection filter in the space between the cassette compartment and the END sensor light receiving portion. (See Fig. 3-3)

Note:
The filter consists of a double layer, and should be used as is.

4) Place in recording mode.

Note:
Refer to the section on Camera Adjustment, "1-5. Precautions" for the recording mode procedure.

5) Set RV001 fully clockwise.
6) Adjust RV001 by turning counterclockwise so that Q119 collector voltage (DC level) is more than 2 V and less than 3 V at the rising point of the light-up pulse. (See Fig. 3-4)

Note:
If voltage is less than 2 V at this time, END detection will operate and shut-off occurs, so in this case, turn RV001 slightly clockwise, then put into recording mode again and readjust.

7) Remove the tape end detection filter and confirm that Q119 collector voltage is less than 0.2 V.

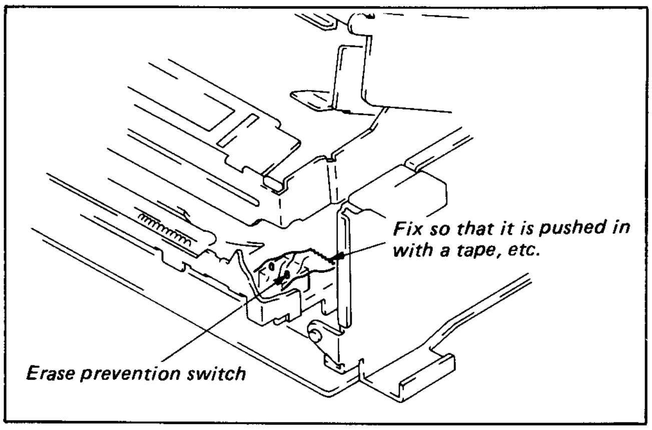

Fix so that it is pushed in with a tape, etc.
Erase prevention switch

Fig. 3-2

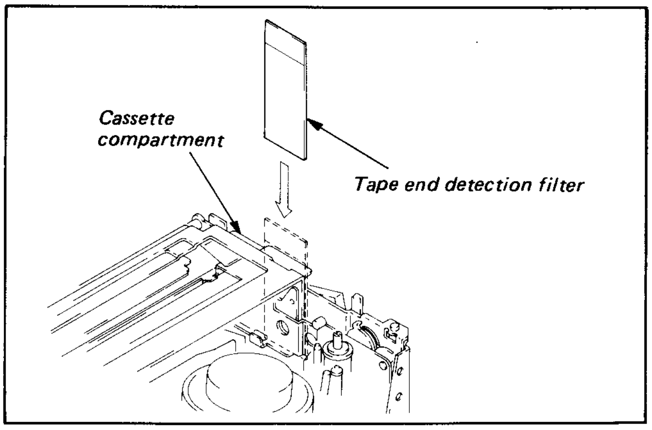

Cassette compartment
Tape end detection filter

Fig. 3-3

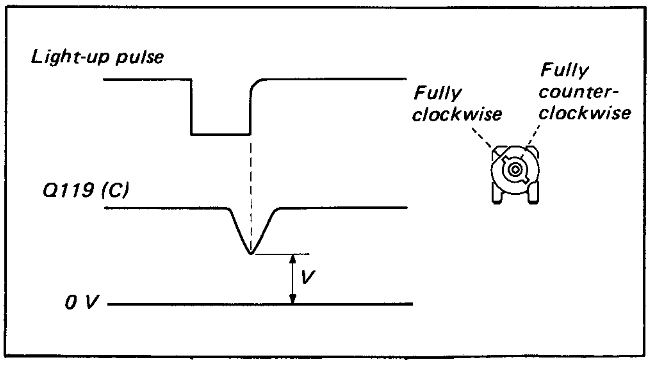

Light-up pulse
Fully clockwise
Fully counter-clockwise
Q119 (C)
V
0 V

Fig. 3-4 Tape end detection adjustment

3-3. SERVO SYSTEM ADJUSTMENT

3-3-1. Capstan DC Bias Adjustment (MD-10 Board)

Mode: Playback (Refer to 2-4. Tape Path Adjustment, 2-4-1. Preparation for Adjustment 4) for playback procedure.)

Tape: An unused tape

Frequency counter: SV-16 board pin ㉑

Adjustment Procedure: Adjust RV202 for a reading of 825.5 ±1 Hz. (Fig. 3-5)

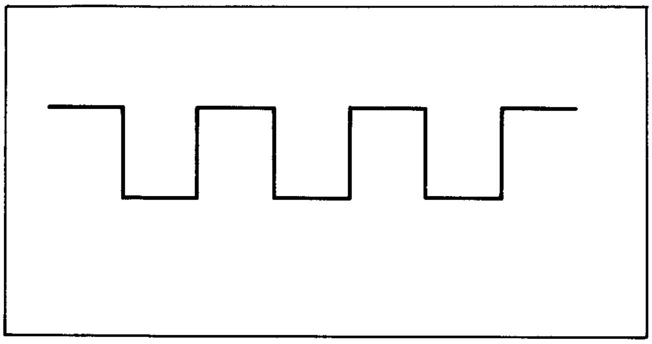


Fig. 3-5 Capstan DC bias adjustment

3-3-2. RF Switching Position Adjustment (MD-10 Board)

Mode: Recording

Subject: Color-bar chart (standard frame)

Adjustment Procedure:

1) Record the color-bar chart.
2) Play back the recorded tape on playback equipment (EV-A300, EV-S700, etc.)
3) Check the switching position on the playback equipment. (Fig. 3-6)

   Note:

   Refer to the Service Manual for the playback equipment, "RF Switching Position Adjustment".
4) If the specifications are not satisfied, turn RV203 and repeat steps 1) – 3).

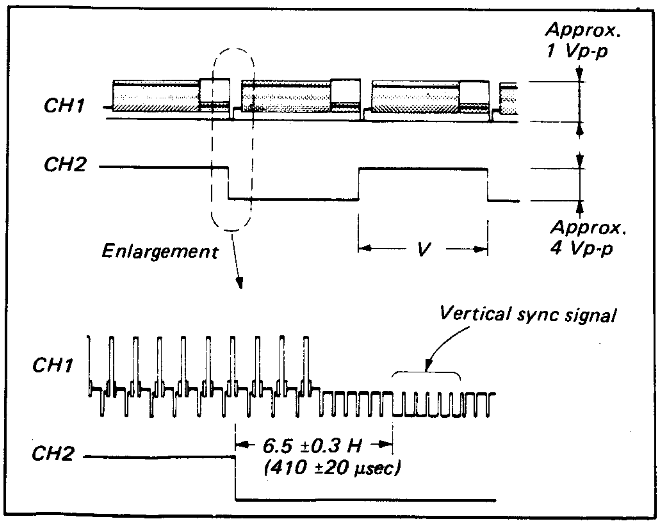


Fig. 3-6 RF switching position adjustment

3-3-3. ATF Recording Current Adjustment (RP-29 Board)

Mode: Recording

Tape: MP tape

Connection: Connect the following three points with jumpers.

- RP-29 board pin ② (REC AFM) and pin ⑨ (REG GND)
- RP-29 board pin ③ (REC C) and pin ⑨ (REG GND)
- RP-29 board pin ④ (REC Y) and pin ⑨ (REG GND)

Adjustment Procedure:

1) Connect the oscilloscope to RP-29 board pin ① (REC ATF) and confirm that the ATF pilot signal is 0.62 ±0.06 Vp-p (102 kHz – 165 kHz). (Fig. 3-7)
2) Reconnect the oscilloscope to RP-29 board pin ⑰.
3) Turn RV502 on the RP-29 board and adjust to 8 mVp-p. (Fig. 3-8)
4) Remove the jumpers after completing adjustment.

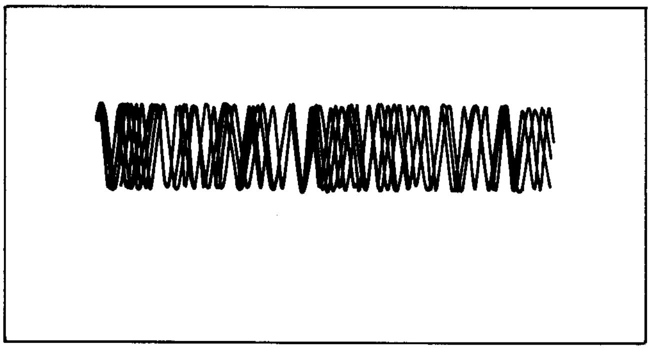


Fig. 3-7

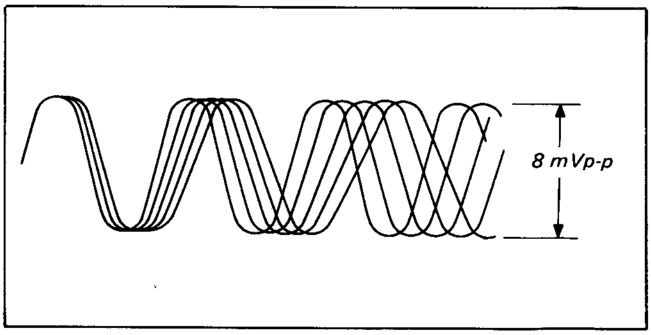


Fig. 3-8 ATF recording current adjustment

3-4. VIDEO SYSTEM ADJUSTMENT

As a general rule, video system adjustment should be performed in the following order.

Adjustment Order

1) Y FM Carrier Frequency Adjustment
2) Y FM Deviation Adjustment
3) AC Clip Adjustment
4) REC Y Recording Current Adjustment
5)a REC C Recording Current Adjustment
5)b REC C Recording Current Adjustment (simplified method)

3-4-1. Y FM Carrier Frequency Adjustment (YM-2 Board)

Mode: Recording
Frequency counter: YM-2 board pin ①
Adjustment Procedure:

1) Connect YM-2 board pin ⑮ (REC Y IN) to pin ⑦ (REG GND) with a jumper.
2) Set RV504 on YM-2 board to mechanical center. (Fig. 3-9)
3) Turn RV505 on YM-2 board and adjust to 4.38 ±0.02 MHz. (Fig. 3-10)
4) Perform "3-4-3. AC Clip Adjustment" after completing adjustment.

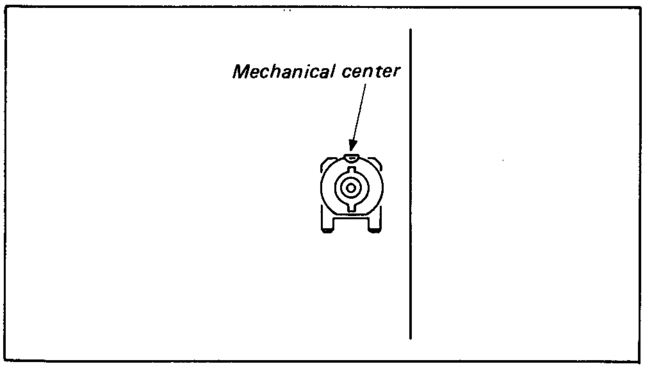


Fig. 3-9

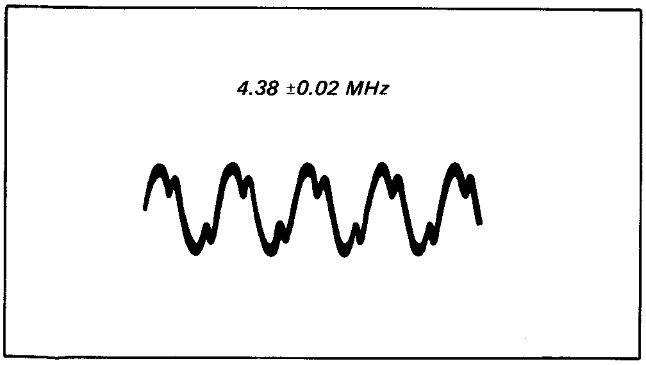


Fig. 3-10 Y FM carrier frequency adjustment

3-4-2. Y FM Deviation Adjustment (YM-2 Board)

Mode: Recording
Subject: Color-bar chart (standard frame)
Adjustment Procedure:

1) Record the color-bar chart.
2) Play back the recorded tape on playback equipment (EV-A300, EV-S700, etc.).
3) Confirm that VIDEO OUT level is $1.00^{+0.025}_{-0.05}$ (Fig. 3-11).

   Note:

   Refer to the Service Manual for the playback equipment, "VIDEO OUT Level Adjustemnt" for the check method.
4) If the specifications are not satisfied, turn RV503 on the YM-2 board and repeat steps 1) – 3).

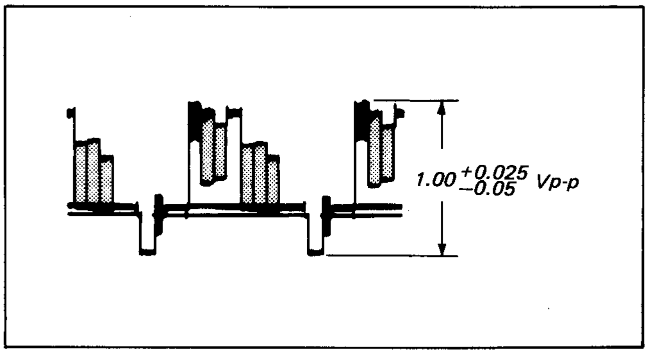


Fig. 3-11 Y FM deviation adjustment

3-4-3. AC Clip Adjustment (YM-2 Board)

Mode: Recording
Subject: All white pattern
Adjustment Procedure:

1) Record the all white pattern.
2) Play back the recorded tape on playback equipment (EV-A300, EV-S700, etc.).
3) Confirm that there is no slant in the pedestal portion of the output waveform on playback equipment VIDEO OUT, and that the shape of the sync signal is normal. (Fig. 3-12)
4) If not, turn RV504 on the YM-2 board and repeat steps 1) – 3).
5) Check that there is no white smear or black smear on the monitor picture.

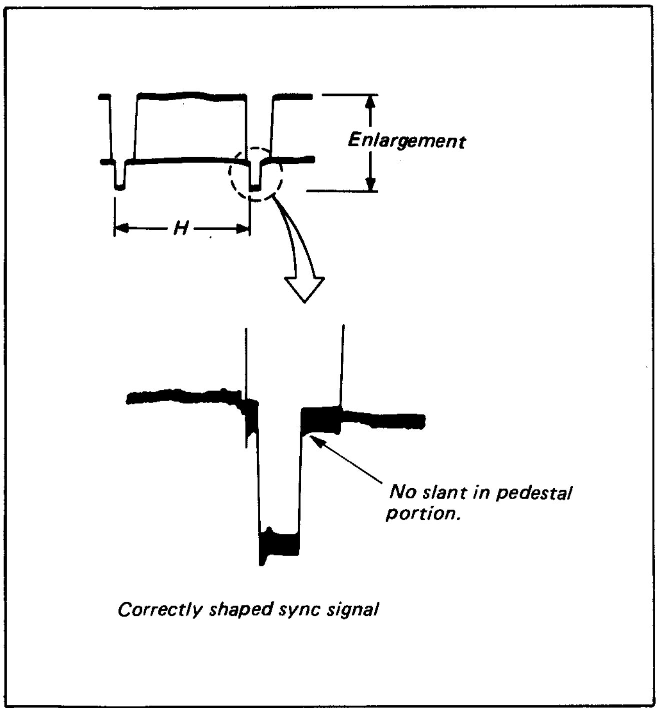


Fig. 3-12 AC clip adjustment

3-4-4. REC Y Recording Current Adjustment (RP-29 Board)

Mode: Recording
Tape: MP tape
Connection: Connect the following four points with jumpers.

- YM-2 board pin ⑮ (REC Y IN) and pin ㉔ (REG GND)
- RP-29 board pin ① (REC ATF) and pin ⑨ (REG GND)
- RP-29 board pin ② (REC AFM) and pin ⑨ (REG GND)
- RP-29 board pin ③ (REC C) and pin ⑨ (REG GND)

Oscilloscope: RP-29 board pin ⑰

Adjustment Procedure: Turn RV510 on the RP-29 board and adjust to 240 ±5 mVp-p. (Fig. 3-13)

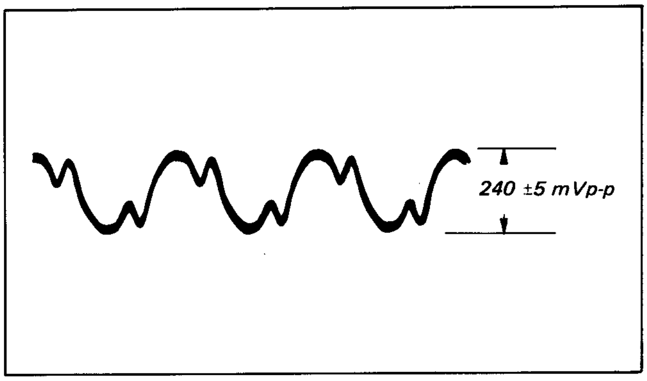


Fig. 3-13 REC Y recording current adjustment

3-4-5a. REC C Recording Current Adjustment (RP-29 Board)

Mode: Recording

Tape: MP tape

Connection: Connect the following three points with jumpers.

- RP-29 board pin ① (REC ATF) and pin ⑨ (REG GND)
- RP-29 board pin ② (REC AFM) and pin ⑨ (REG GND)
- RP-29 board pin ④ (REC Y) and pin ⑨ (REG GND)

Adjustment Procedure:

1) Remove the solder at RP-29 board pin ③ (REC C) as shown in Fig. 3-14 so that the pin is completely off the land, and input a 750 kHz, 0.4 ±0.01 Vp-p sine wave from an RC oscillator.
2) Connect the oscilloscope to RP-29 board pin ⑰ and adjust to 42 mVp-p with RV508. (Fig. 3-15)

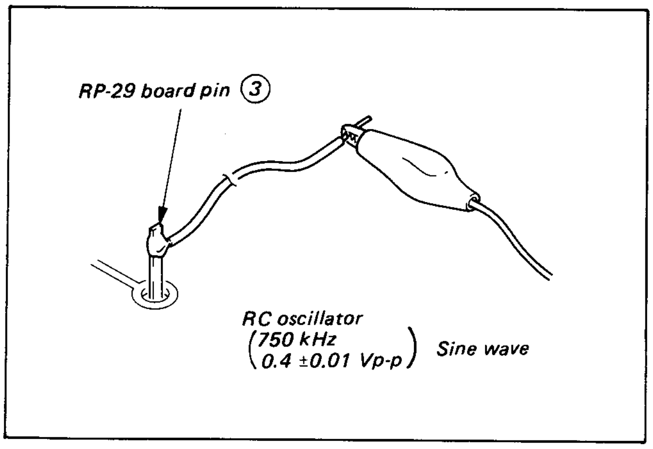


Fig. 3-14

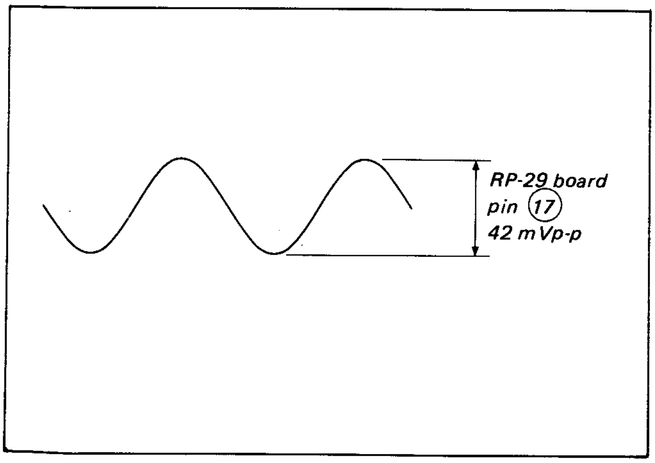


Fig. 3-15 REC C recording current adjustment

3-4-5b. REC C Recording Current Adjustment (simplified method)

Mode: Recording

Subject: Color-bar chart (standard frame)

Adjustment Procedure: Connect the oscilloscope to RP-29 board pin ③, and memorize red level.

Connect the oscilloscope to RP-29 board pin ⑰, and adjust RV508 so that red level is 1/10 against the level at pin ③. (Fig. 3-16)

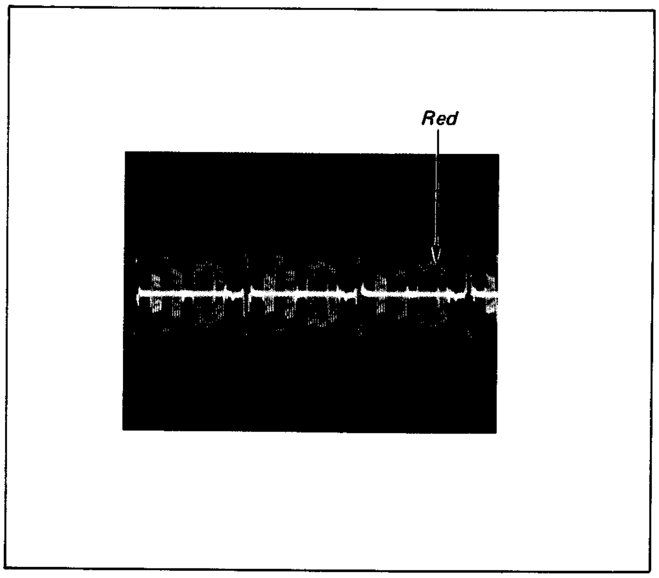
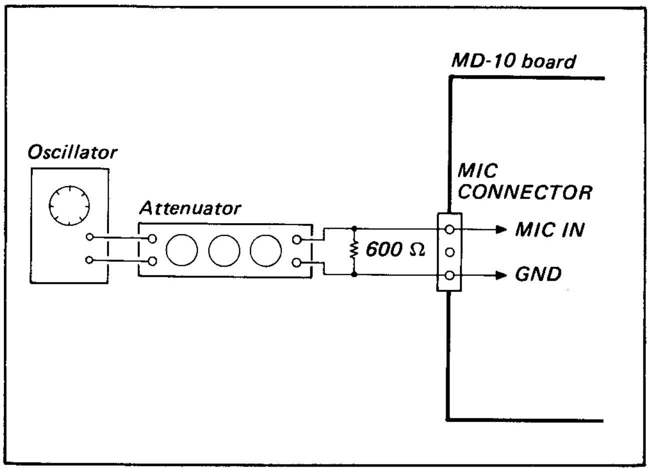


Fig. 3-16 REC C recording current adjustment (simplified method)

3-5. AUDIO SYSTEM ADJUSTMENT

Connection of audio measurement equipment:
Connect as shown below when inputting audio signal to MIC connector.



Refer to the Service Manual for the playback equipment when measuring using playback equipment.

Adjustment Order

1) AFM Carrier Frequency Adjustmnt
2) Carrier Level Check
3) Deviation Adjustment
4) Noise Level Check
5) Frequency Response Check
6) AGC Check
7) Distortion Check

3-5-1. AFM Carrier Frequency Adjustment (AU-16 Board)

Mode: Recording
Audio input signal: no signal (Short MIC connector pin ① (yellow) and pin ③ (white).)
Frequency counter: AU-16 board pin ②
Adjustment Procedure: Turn RV401 on the AU-16 board and adjust to 1507 ±2 kHz.

3-5-2. Carrier Level Check (AU-16 Board)

Mode: Recording
Audio input signal: no signal
Oscilloscope: AU-16 board pin ②
Adjustment Procedure: Check that the signal level is 120 ±20 mVp-p. (Fig. 3-18)

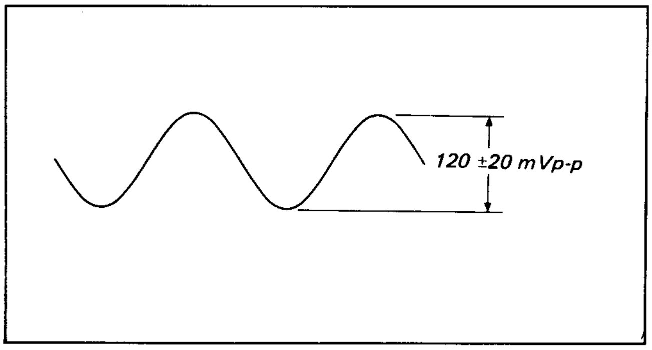


Fig. 3-18 Carrier level check

3-5-3. Deviation Adjustment

Adjustment Procedure:

1) Play back the reference tape (WR5-3NS) on playback equipment (EV-A300, EV-S700, etc.) and measure AUDIO OUT level (S dB).
2) Input 400 Hz −66 dB to CCD-M8/M8u MIC connector pin ③ (white) and record for more than 10 seconds.
3) Play back the portion recorded in step 2) on playback equipment and confirm that the AUDIO OUT level is S ±1 dB.
4) If the specifications are not met, adjust according to the following.
   i) If level is smaller than S −1 dB:
      Turn RV402 on the AU-16 board counterclockwise and adjust so that the specifications are met by repeating steps 2) and 3).
   ii) If level is larger than S +1 dB:
      Turn RV402 on the AU-16 board clockwise and adjust so that the specifications are met by repeating steps 2) and 3).

3-5-4. AFM Recording Current Adjustment (RP-29 Board)

Mode: Recording
Tape: MP tape
Connection: Connect the following three points with jumpers.

- RP-29 board pin ① (REC AFT) and pin ⑨ (REG GND)
- RP-29 board pin ③ (REC C) and pin ⑨ (REG GND)
- RP-29 board pin ④ (REC Y) and pin ⑨ (REG GND)

Adjustment Procedure:

1) Connect the oscilloscope to RP-29 board pin ② and confirm that the AFM carrier signal (15 MHz) is 120 ±20 mVp-p. (Fig. 3-19)
2) Reconnect the oscilloscope to RP-29 board pin ⑰.
3) Turn RV501 on the RP-29 board and adjust to 10 mVp-p. (Fig. 3-20)

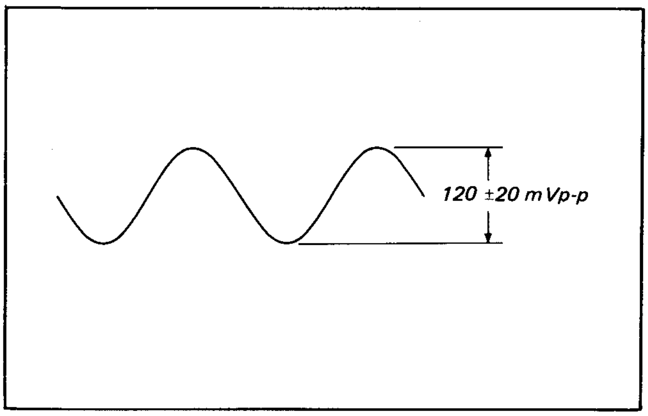


Fig. 3-19

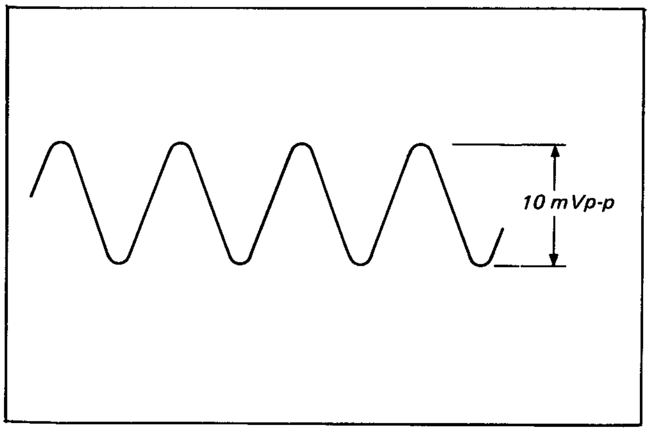


Fig. 3-20 AFM recording current adjustment

3-5-5. Noise Level Check

Audio input signal: no signal (Short MIC connector pin ① (yellow) and pin ③ (white).)

Adjustment Procedure:

1) Record using CCD-M8.
2) Play back the recorded portion on playback equipment (EV-A300, EV-S700, etc.).
3) Measure the playback equipment AUDIO OUT level for more than 3 seconds and confirm that it is below −52 dB.

3-5-6. Frequency Response Check

1) Input 400 Hz, 1 kHz, 150 Hz, 20 kHz (all −66 dB) signals to MIC connector pin ③ (white) in order for 10 seconds each and record on tape.
2) Play back the recorded portion on playback equipment (EV-A300, EV-S700, etc.).
3) Measure the playback equipment AUDIO OUT level and confirm that the 1 kHz, 150 Hz and 20 kHz levels are as follows relative to the 400 Hz level (−x dB).

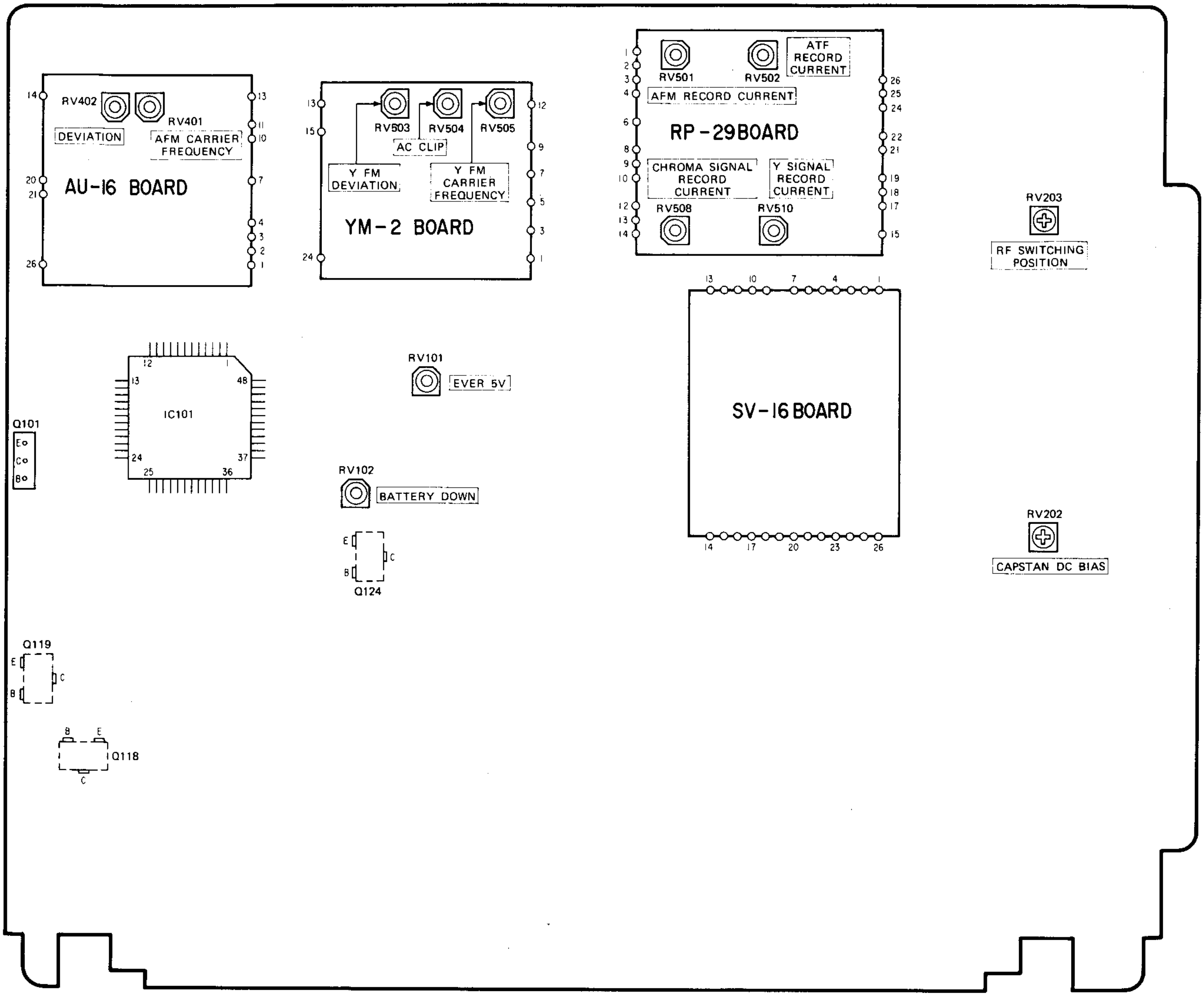
400 Hz . . . . −x dB
1 kHz . . . . . −x ±3 dB
150 Hz . . . . −x less than −3 dB
20 kHz . . . . −x less than −3 dB

3-5-7. AGC Check

1) Input a 400 Hz, −46 dB signal to MIC connector pin ③ (white) and record for more than 10 seconds.
2) Play back the recorded portion on playback equipment (EV-A300, EV-S700, etc.).
3) Check that the playback equipment AUDIO OUT level is less than 0 dB.

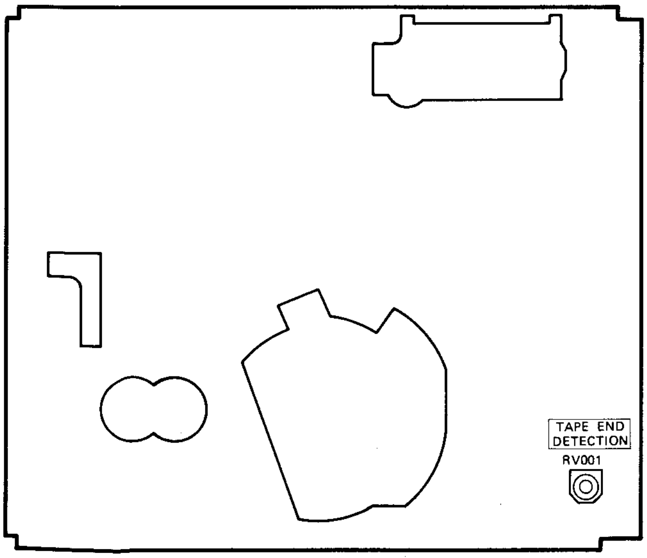
3-5-8. Distortion Check

1) Input a 400 Hz, −66 dB signal to MIC connector pin ③ (white) and record for more than 10 seconds.
2) Play back the recorded portion on playback equipment (EV-A300, EV-S700, etc.).
3) Confirm that playback equipment AUDIO OUT distortion is less than 1%.


MD-10 BOARD (COMPONENT SIDE)

AU-16 BOARD
RV402
RV401
DEVIATION
AFM CARRIER FREQUENCY
YM-2 BOARD
RV503
RV504
RV505
AC CLIP
Y FM DEVIATION
Y FM CARRIER FREQUENCY
RP-29BOARD
RV501
RV502
ATF RECORD CURRENT
AFM RECORD CURRENT
CHROMA SIGNAL RECORD CURRENT
Y SIGNAL RECORD CURRENT
RV508
RV510
RV203
RF SWITCHING POSITION
IC101
Q101
RV101
EVER 5V
RV102
BATTERY DOWN
Q124
SV-16BOARD
RV202
CAPSTAN DC BIAS
Q119
Q118

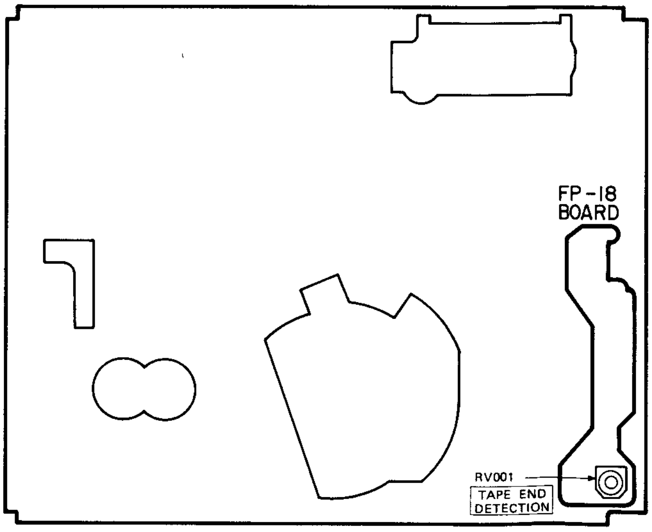
- **When RV001 is mounted on the CC-3 board.**


CC-3 BOARD

TAPE END DETECTION
RV001

Note:
There are two types of set: one has the tape end detection volume (RV001) mounted on the FP-18 board; the other, on the CC-3 board.

- **When RV001 is mounted on the FP-18 board.**


CC-3 BOARD

FP-18 BOARD
RV001
TAPE END DETECTION